ICSMA 20

The 20th International Conference on Strength of Materials

June 2nd – 6th, 2025

Venue : Kyoto International Conference Center (Kyoto Kokusaikaikan), Kyoto, Japan

This conference is supported by Japan Institute of Metals and Materials (JIMM) as JIMIC-9.

Index

Final update: 20th May 2025

Please note that:

- There might be last-minute changes in the program
- You will find the latest program with all last-minute changes on My Page: https://registration.icsma20.com/login
- We keep up-to-date information about program changes at the reception desk.

Emergency phone numbers in Japan: Police: **110**, Fire / Ambulance: **119**

In the event of a major earthquake, take cover immediately—protect your head and stay away from windows or tall furniture. Do not use elevators, and wait for instructions from on-site staff or emergency broadcasts. Should evacuation be necessary (for example, in case of fire), calmly follow posted exit signs and assemble at the designated areas near the entrance rotary, Parkings, or Garden. Please alert event staff at the reception desk or call the emergency center of the conference center ((+81) 075-705-1311) if you need assistance or witness any injuries.

Conference secretariat contact: info@icsma20.com

Free Wifi in the conference venue: ID “ICCK_Public_WiFi” (can be connected without password)

Forword

Dear Colleagues and Friends,

On behalf of the Organizing Committee, it is our great pleasure to welcome all of you to the 20th International Conference on the Strength of Materials (ICSMA 20), hosted here in Kyoto. Building on a remarkable legacy that first began in 1967, ICSMA has been at the forefront of advancing our understanding of materials strength for over half a century. It is both an honor and a privilege for our city, Kyoto, to serve as the venue for this important milestone event.

This time, we are delighted to welcome approximately 600 participants from 23 countries, reflecting the truly global reach of the ICSMA community. Over the course of the conference, we will explore a broad spectrum of topics, from fundamental mechanisms of deformation to emerging materials and groundbreaking advances in fields such as additive manufacturing and biomedical applications. These discussions will help us to shape the future of materials science, inspiring new avenues for research, collaboration, and innovation.

In addition to our technical sessions, we hope you will take the opportunity to enjoy Kyoto's cultural richness. As the ancient capital of Japan, Kyoto offers a wealth of historic sites, beautiful temples, and traditional arts—providing an ideal backdrop for forging new professional partnerships and friendships.

We would also like to express our sincere gratitude to our sponsor companies and supporters, including the Japan Institute of Metals and Materials (JIMM), which enabled as to hold ICSMA 20 as JIMIC-9. Their commitment and dedication underscore the importance of our collective efforts in advancing materials science.

Thank you for joining us at ICSMA 20. I wish you a stimulating and productive conference, and I look forward to meeting many of you in person over the coming days.

On behalf of the Organizing Committee
Professor Nobuhiro Tsuji
Kyoto University, Japan
Chairperson, ICSMA 20

Organization

Chair persons

Chair: Nobuhiro Tsuji, Kyoto University, Japan
Vice chair: Masaki Tanaka, Kyushu University, Japan
Vice chair: Tomotsugu Shimokawa, Kanazawa University, Japan

International committee

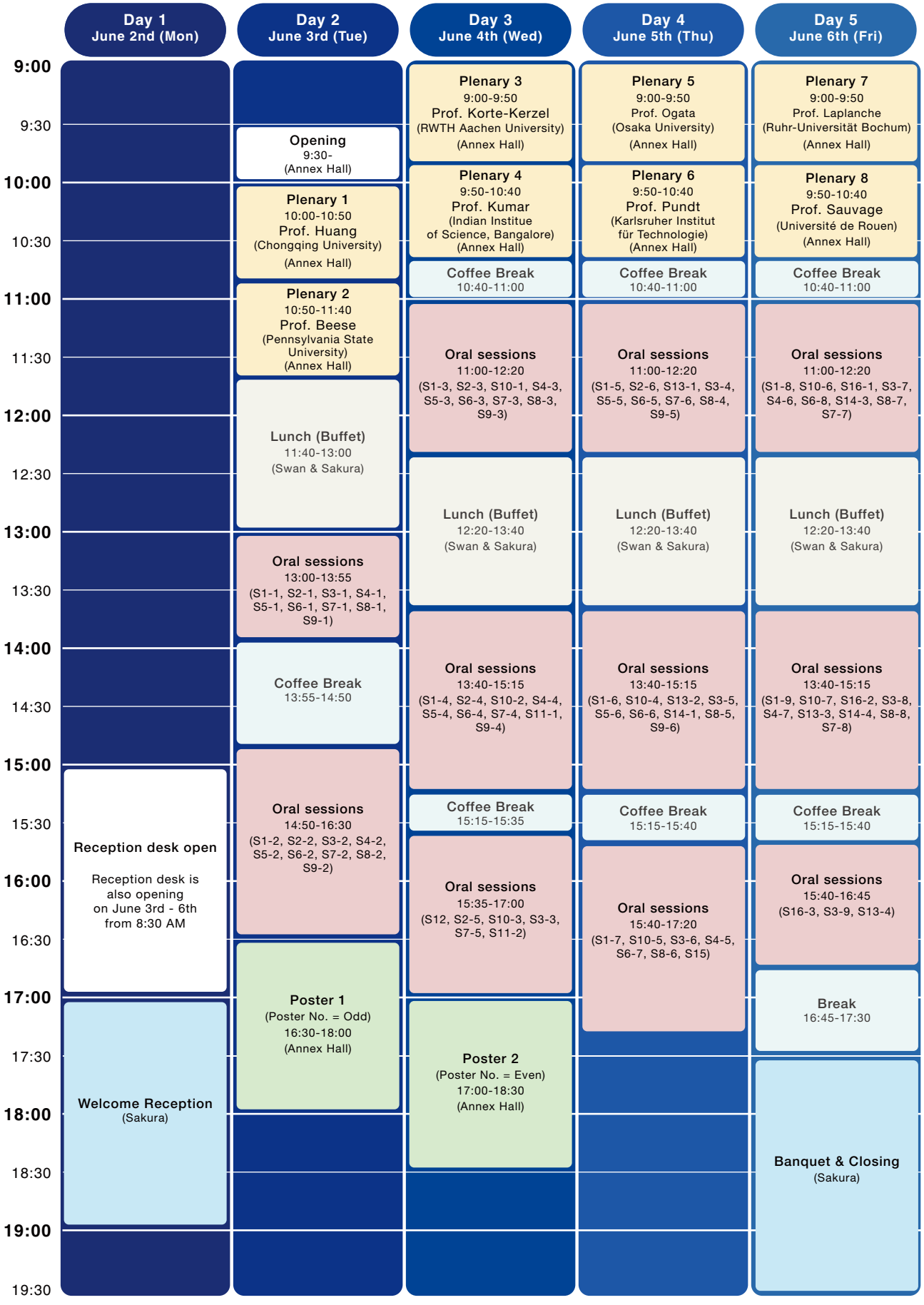
ICSMA20 is under the supervision of the ICSMA international scientific committee for all strategic issues of the conference.

Marc Legros, France - Chair
Christoph Kirchlechner, Germany - Vice chair
Peter Anderson, USA
Irene Beyerlein, USA
William Curtin, USA
Gunther Eggeler, Germany
Easo George, USA
Andrea Hodge, USA
Christopher Hutchinson, Australia
Hyoung Seop Kim, Korea
Erica Lilleodden, Germany
Lei Lu, China
Maria-Teresa Perez-Prado, Spain
Reinhard Pippan, Austria
Cathy Rae, UK
Satyam Suwas, India
Nobuhiro Tsuji, Japan
Laszlo S. Toth, France and Hungary
David Wilkinson, Canada

Local committee

Seiji Miura, Hokkaido University, Japan
Hiroyuki Sato, Hirosaki University, Japan
Kyosuke Yoshimi, Tohoku University, Japan
Yoshiteru Aoyagi, Tohoku University, Japan
Hidemi Kato, Tohoku University, Japan
Shigeru Kuramoto, Ibaraki University, Japan
Tomohito Tsuru, Japan Atomic Energy Agency, Japan
Takahito Ohmura, National Institute of Materials Science, Japan
Kota Sawada, National Institute for Materials Science, Japan
Rintaro Ueji, National Institute for Materials Science, Japan
Taisuke Sasaki, National Institute for Materials Science, Japan
Daisuke Terada, Chiba Institute of Technology, Japan
Shinsuke Suzuki, Waseda University, Japan
Hidehiro Yoshida, University of Tokyo, Japan
Naoya Shibata, University of Tokyo, Japan
Yoko Mitarai, University of Tokyo, Japan
Eiichi Sato, Japan Aerospace Exploration Agency, Japan
Kazuyuki Shizawa, Keio University, Japan
Hidenari Takagi, Nihon University, Japan
Toshiyuki Fujii, Institute of Science Tokyo, Japan
Nobuo Nakada, Institute of Science Tokyo, Japan
Tomoya Inamura, Institute of Science Tokyo, Japan
Shoichi Hirosawa, Yokohama National University, Japan
Taiki Nakata, Nagaoka University of Technology, Japan
Kenji Matsuda, University of Toyama, Japan
Mayumi Suzuki, Toyama Prefectural University, Japan
Tomotsugu Shimokawa, Kanazawa University, Japan
Chihiro Watanabe, Kanazawa University, Japan
Hiromi Miura, Toyohashi University of Technology, Japan
Yoshikazu Todaka, Toyohashi University of Technology, Japan
Hajime Kimizuka, Nagoya University, Japan
Yoshitaka Adachi, Nagoya University, Japan
Naoki Takata, Nagoya University, Japan
Katsushi Matsunaga Nagoya University, Japan
Hisashi Sato, Nagoya Institute of Technology, Japan
Koji Hagihara, Nagoya Institute of Technology, Japan
Yoshihiko Uematsu, Gifu University, Japan
Hiroyuki Miyamoto, Doshisha University, Japan
Nobuhiro Tsuji, Kyoto University, Japan
Kyosuke Kishida, Kyoto University, Japan
Si Gao, Kyoto University, Japan
Myeong-heom Park, Kyoto University, Japan
Shuhei Yoshida, Kyoto University, Japan
Yuichiro Koizumi, Osaka University, Japan
Hidetoshi Fujii, Osaka University, Japan
Atsutomo Nakamura, Osaka University, Japan
Masato Ueda, Kansai University, Japan
Yoshihisa Kaneko, Osaka Metropolitan University, Japan
Tadashi Hasebe, Kobe University, Japan
Hiroki Adachi, University of Hyogo, Japan
Shigekazu Morito, Shimane University, Japan
Hiroaki Matsumoto, Kagawa University, Japan
Sengo Kobayashi, Kagawa University, Japan
Masaki Tanaka, Kyushu University, Japan
Shigeto Yamasaki, Kyushu University, Japan
Tatsuya Morikawa, Kyushu University, Japan
Masatoshi Mitsuhara, Kyushu University, Japan
Toshihiro Tsuchiyama, Kyushu University, Japan
Michiaki Yamasaki, Kumamoto University, Japan

Conference Overview and outline



Plenary speakers

Day 2: Tuesday - June 3rd Annex Hall (Chair: Hyoung Seop Kim, POSTECH)

10:00 - 10:50 **Prof. Xiaoxu Huang, Chongqing University, China**

Presentation title: **Deformation and strengthening mechanisms in nanocrystalline metals studied by 3D electron microscopy and synchrotron X-ray diffraction**

Xiaoxu Huang, Professor of materials science and engineering at Chongqing University, China. He received his Bachelor's degree from Chongqing University in 1984 and his Ph.D. from Harbin Institute of Technology in 1995 (he studied at Kyoto University from 1992-1995). He then joined Risø National Laboratory, Denmark as a Visiting Scientist in 1995 and was hired as a Senior Scientist at Risø from 1998-2007. Risø merged with the Technical University of Denmark (DTU) in 2007, when he continued as a Senior Researcher at DTU until 2020. His research interests include materials science and advanced electron microscopy. He has published more than 350 papers in academic journals including Nature (2), Science (7), and Acta Materialia (38). He was awarded twice the Invitation Fellowship of the Japan Society for the Promotion of Science in 2004 and 2013 and the Microscopy Today Innovation Award in 2012 (USA). He is an associate editor of Nano Materials Science and an editor of Materials Research Letters.

10:50 - 11:40 **Prof. Allison Michelle Beese, Pennsylvania State University, USA**

Presentation title: **Process-structure-property linkages toward adoption of additive manufacturing**

Allison Beese is a professor in the Department of Materials Science and Engineering at Penn State University. She also serves as Director of Penn State's Additive Manufacturing and Design graduate program and co-director of Penn State's Additive Manufacturing center (CIMP-3D). Her multiscale mechanics of materials research group focuses on using experimental and computational methods to identify and model the links between microstructural features and deformation and failure of materials, with a focus on additively manufactured metallic materials. She received her B.S. in Mechanical Engineering from Penn State, and M.S. and Ph.D. in Mechanical Engineering from MIT.

Day 3: Wednesday - June 4th Annex Hall (Chair: Christoph Kirchlechner, Karlsruhe Institute of Technology)

9:00 - 9:50 **Prof. Sandra Korte Kerzel, RWTH Aachen University, Germany**

Presentation title: **When brittle crystals turn ductile - understanding the crystal plasticity of intermetallics from their fundamental building blocks**

Sandra Korte-Kerzel studied towards her masters degrees at RWTH Aachen University, Germany, and the University of Canterbury, New Zealand, before joining the group of Prof. W. J. Clegg at the University of Cambridge in 2006. During her PhD at Cambridge she studied deformation at small scales, particularly in hard and brittle materials, including semiconductors and ceramic oxides. From 2009, she continued as a post-doctoral researcher in the Rolly-Royce-UTC, working on high temperature indentation and microcompression, before moving to Erlangen for a junior professorship in micromechanics of materials at FAU Erlangen-Nürnberg. In 2013, she took up her current position at RWTH Aachen University as Professor of Materials Physics. She is also Vice-Rector of Research at RWTH. Her research uses nano- and micromechanical testing coupled with electron microscopy and simulations at the atomic scale in order to unravel how dislocations move in intermetallics and reveal deformation and damage mechanisms in dual phase microstructures. She acts as spokesperson of the Collaborative Research Centre SFB1394 on Structural and Chemical Atomic Complexity – From Defect Phases to Material Properties funded by the Deutsche Forschungsgemeinschaft. Her research is also supported by the European Research Council in the ERC Starting Grant FunBlocks and ERC Consolidator Grant TailorPlast.

Plenary speakers

Day 3: Wednesday - June 4th Annex Hall (Chair: Christoph Kirchlechner, Karlsruhe Institute of Technology)

9:50 - 10:40 **Prof. Praveen Kumar, Indian Institute of Science, Bangalore, India**

Presentation title: **Effect of Electric Current Pulsing on Structural Integrity of Pre-Cracked Thin Metallic Sheets**

Praveen Kumar received his Bachelor of Technology degree in Mechanical Engineering from the Indian Institute of Technology, Kanpur (India) in 2003. Subsequently, he received M.S. and Ph.D. degrees in Mechanical Engineering, with emphasis on Materials, from the University of Southern California, Los Angeles (USA) in 2005 and 2007, respectively. He joined the Department of Materials Engineering at the Indian Institute of Science, Bangalore (India) in May 2011 as an assistant professor and he has been working therein as a professor since May 2023.

His main research interests are the mechanical behavior of materials, with particular emphasis on studying the effects of electric current, temperature and sample length scale, and constructive usage of electromigration, both in solid and liquid metals. His works involve structure-property relationships to gain fundamental insights into structural integrity of structures, and the findings have been published in more than more than 140 journal articles. He has received scientific awards including Abdul Kalam Technology Innovation National Fellowship from the Indian National Academy of Engineering (2022-2025), Young Scientist Award from the Indian National Science Academy (2016), and so on.

Day 4: Thursday - June 5th Annex Hall (Chair: Peter Anderson, The Ohio State University)

9:00 - 9:50 **Prof. Shigenobu Ogata, Osaka University, Japan**

Presentation title: **Atomistic Insights of Hydrogen Impact on Metals**

Dr. Shigenobu Ogata is a Full Professor in the Department of Mechanical Science and Bioengineering in Osaka University. He received his Ph.D. degree in Mechanical Engineering from Osaka University in 1998. He was a visiting research scientist in the Department of Nuclear Science and Engineering at MIT(USA) 2001 - 2002. He is an editor of Progress in Materials Science. He and his group aim to develop reliable theoretical models and neural network models for describing various nonlinear multiscale and/or multiphysics phenomena that appear in solid materials, and then to design materials with novel functions and a deformation process controlled at an atomic level in a predictive manner. He developed many mature and widely accepted models for the strength and deformation of materials; Strength of crystal, Amorphous deformation, Dislocation and Diffusion driven deformation, Hydrogen embrittlement and so on.

9:50 - 10:40 **Prof. Astrid Pundt, Karlsruher Institut für Technologie, Germany**

Presentation title: **H in thin films: size and stress effects on the system thermodynamics and kinetics**

Astrid Pundt received her diploma in Physics at the TU Braunschweig and graduated in 1995 at Göttingen University in the Institute of Metal Physics of P. Haasen and R. Kirchheim. She finalized her habilitation procedure in 2001. In 2009, she received the apl. Professorship at Göttingen University where she worked founded via a Heisenberg grant of the DFG. In 2010 she visited the group of B. Hjörvarsson at Uppsala University, Sweden. Since 2018, Astrid Pundt is full professor at the Karlsruhe Institute of Technology KIT, as director of the Institute of Applied Materials – Materials Engineering (IAM-WK).

Her research focusses on different types of materials, being either defect-rich or nano-scaled, in contact with hydrogen. She addresses fundamental thermodynamic and kinetic aspects using hydrogen-containing model materials, highlighting the impact of sample size, mechanical stress and constraint conditions on the materials properties, especially by considering plastic deformation. She uses a large variety of experimental in-situ methods, ranging from light microscopy to 3D atom probe and electron microscopy. A. Pundt is chair of the division “Metal- and Materials Physics” (MM) of the Deutsche Physikalische Gesellschaft, DPG-section condensed matter SKM, and acts as “Fachkollegiatin“ for the German Science Foundation DFG.

Plenary speakers

Day 5: Friday - June 6th Annex Hall (Chair: Marc Legros, CEMES, CNRS)

9:00 - 9:50 **Prof. Guillaume Laplanche, Ruhr-Universität Bochum, Germany**

Presentation title: **Recent progress in understanding deformation twinning in concentrated solid solutions**

Guillaume Laplanche received a Master's degree in Physics with a specialization in Materials Science from the Pprime Institute, Poitiers, France in 2008 and a PhD in Physical Metallurgy from the University of Poitiers in 2011. After his PhD, he was awarded a scholarship from the Alexander von Humboldt Foundation and moved to Germany to study the micromechanics of NiTi shape memory alloys. In 2014, he started working in the field of high-entropy alloys before being appointed junior professor at the Chair for Materials Science and Engineering of the Ruhr University Bochum, Germany in 2016. Since September 2021, he has been working there as an adjunct professor, and he is now leading the research group "Microstructure and Mechanical Properties of Materials". His research focuses on the development of chemically complex alloys for various applications in the aerospace, automotive, and energy industries, where they must withstand extreme temperatures, loads, and environmental conditions. The activities focus on two main aspects, namely, the understanding of the deformation mechanisms of structural alloys over a wide temperature range from cryogenic to high temperatures, and their microstructural stability and kinetics of strength degradation at high temperatures.

9:50 - 10:40 **Prof. Xavier Sauvage, Université de Rouen, France**

Presentation title: **Precipitation hardening in Al alloys, beyond classical routes**

Xavier Sauvage is a former student of Ecole Normale Supérieure de Cachan (France) where he graduated in mechanical engineering before moving to the physics department of the University of Rouen Normandie where he received a PhD degree in Physics in 2001. This is where he started to develop some expertise on nanostructured metallic alloys, phase transformations, atom probe tomography and transmission electron microscopy. He moved then for a short period at the Max Planck Institute of Stuttgart before joining the CNRS (National Scientific Research Center – France). He is now Director of the "Groupe de Physique des Matériaux" (Institute of Physics of Materials) located at the University of Rouen Normandie in France. During the past 20 years, Xavier Sauvage has reached a reputation of expert in the field of high resolution chemical analysis (APT and TEM) in metallic alloys and especially in severely deformed and nanostructured materials. His expertise is not limited to characterization down to the atomic scale but also covers fundamental mechanisms of phase transformations in metallic alloys, the important role of defects and especially those resulting from high strains. A significant part of his projects has also been dedicated to the relationships between nanoscaled features and material properties, often in connection with industrial partners. He received in 2019 the Acta Materialia Silver Medal Award and in 2010 the FEMS Young Lecturer Award.

Invited speakers

Prof. Kei Ameyama, Ritsumeikan University, Japan
Prof. Peter M Anderson, The Ohio State University, USA
Prof. Benoit Appolaire, Universite de Lorraine, France
Prof. Dipankar Banerjee, Indian Institute of Science, India
Prof. Rajarshi Banerjee, University of North Texas, USA
Dr. Daniel Caillard, Centre d'elaboration de materiaux et d'etudes structurales, CNRS, France
Prof. Philippe Castany, Institut National des Sciences Appliquees de Rennes, France
Prof. Kausik Chattopadhyay, Indian Institute of Technology (Banaras Hindu University), India
Prof. Peng Chen, Jilin University, China
Prof. Hao Chen, Tsinghua University, China
Prof. Robert Chulist, AGH University of Science and Technology, Poland
Prof. Jean-Philippe Couzinie, Institut de Chimie et des Materiaux Paris-Est, CNRS, France
Prof. Jun Ding, Xi'an Jiaotong University, China
Dr. Jun-Ping Du, Osaka University, Japan
Prof. Karsten Durst, Technische Universitaet Darmstadt, Germany
Dr. Saryu Fensin, Los Alamos National Laboratory, USA
Prof. Roberto Figueiredo, Universidade Federal de Minas Gerais, Brazil
Prof. Joao Quinta da Fonseca, University of Manchester, UK

Invited speakers

Prof. Uwe Glatzel, University of Bayreuth, Germany
Prof. Stephane Gorsse, Universite de Bordeaux, France
Prof. Antoine Guitton, Universite de Lorraine, CNRS, France
Dr. Ivan Gutierrez, National Institute for Materials Science, Japan
Prof. Koji Hagihara, Nagoya Institute of Technology, Japan
Prof. Weizhong Han, Xi'an Jiaotong University, China
Prof. Tadashi Hasebe, Kobe University, Japan
Prof. Andrea M Hodge, University of Southern California, USA
Prof. Christopher Hutchinson, Monash University, Australia
Prof. Dorte Juul Jensen, Technical University of Denmark, Denmark
Prof. Wang Jian, University Of Nebraska - Lincoln, USA
Prof. Satish Vasu Kailas, Indian Institute of Science, India
Prof. Yoshihisa Kaneko, Osaka Metropolitan University, Japan
Dr. Alexander Kauffmann, Karlsruhe Institute of Technology, Germany
Prof. Hyoung Seop Kim, Pohang University of Science and Technology, Korea
Prof. Christoph Kirchlechner, Karlsruhe Institute of Technology, Germany
Prof. Kyosuke Kishida, Kyoto University, Japan
Prof. Shigeaki Kobayashi, Ashikaga University, Japan
Prof. Sengo Kobayashi, Ehime University, Japan
Prof. Ludmila Kucerova, University of West Bohemia, Czech Republic
Dr. Seung-Yong Lee, Korea Institute of Materials Science, Korea
Prof. Yunjie Li, Northeastern University, China
Prof. Yizhuang Li, Northeastern University, China
Prof. Xiaopeng Li, The University of New South Wales, Australia
Prof. Zhao Lijia, Northeastern University, China
Prof. Lei Lu, Institute of Metal Research, Chinese Academy of Sciences, China
Prof. Wenjun Lu, Southern University of Science and Technology, China
Prof. Haiwen Luo, University of Science and Technology Beijing, China
Prof. En Ma, Xi'an Jiaotong University, China
Prof. Katsuyuki Matsunaga, Nagoya University, Japan
Prof. Wojciech Maziarz, Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland
Prof. Michael J Mills, The Ohio State University, USA
Prof. Seiji Miura, Hokkaido University, Japan
Prof. Hiroyuki Miyamoto, Doshisha University, Japan
Prof. Nobuo Nakada, Institute of Science Tokyo, Japan
Dr. Steffen Neumeier, Friedrich-Alexander-Universitat Erlangen-Nurnberg, Germany
Prof. Shigeto Robert Nishitani, Kwansei Gakuin University, Japan
Prof. Prita Pant, Indian Institute of Technology Bombay, India
Prof. Henryk Paul, Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland
Prof. Olivier Pierron, Georgia Institute of Technology, USA
Dr. Oliver Renk, Montanuniversitat Leoben, Austria
Prof. Junji Saida, Tohoku University, Japan
Prof. Shigeo Saimoto, Queen's University, Canara
Prof. Jae Bok Seol, Kookmin University, Korea
Dr. Kazuki Shibanuma, The University of Tokyo, Japan
Prof. Akinobu Shibata, National Institute for Materials Science, Japan
Dr. Amit Shyam, Oak Ridge National Laboratory, USA
Prof. Werner Skrotzki, Technische Universitaet Dresden, Germany
Dr. Marek Smaga, Rheinland-Pfalzische Technische Universitat Kaiserslautern-Landau, Germany
Dr. Denis Solas, Universite Paris-Saclay, France
Prof. Satyam Suwas, Indian Institute of Science, India
Prof. Mayumi Suzuki, Toyama Prefectural University, Japan
Prof. Naoki Takata, Nagoya University, Japan
Prof. Nai Rong Tao, Institute of Metal Research, Chinese Academy of Sciences, China
Prof. Yanzhong Tian, Northeastern University, China
Prof. Eita Tochigi, The University of Tokyo, Japan
Prof. Noriyuki Tsuchida, University of Hyogo, Japan
Prof. Tamas Ungar, University of Miskolc, Hungary
Prof. Yunjiang Wang, Institute of Mechanics, Chinese Academy of Sciences, China
Prof. Zhangwei Wang, Central South University, China
Dr. Yifan Wang, Stanford University, USA
Prof. David S Wilkinson, McMaster University, Canada
Prof. Michiaki Yamasaki, Kumamoto University, Japan
Prof. Wenshu Yang, Harbin Institute of Technology, China
Prof. Chao Yang, Shanghai Jiaotong University, China
Prof. Hidehiro Yoshida, The University of Tokyo, Japan
Prof. Qiang Zhang, Harbin Institute of Technology, China
Prof. Zhenbo Zhang, ShanghaiTech University, China
Prof. Xiaoli Zhao, Northeastern University, China
Prof. Qinglong Zhao, Jilin University, China
Prof. Ruixiao Zheng, Beihang University, China
Prof. Min Zhou, Georgia Institute of Technology, USA
Prof. Xinkun Zhu, Kunming University of Science and Technology, China
Prof. Ting Zhu, Georgia Institute of Technology, USA

List of topics

S1: Elementary deformation mechanisms
S2: Micro- and nano-scale mechanical testing
S3: Mechanical behavior of high entropy alloys
S4: Effects of grain boundaries and interfaces
S5: High temperature deformation and creep
S6: Mechanical behavior associated with phase transformations
S7: Mechanical behavior of heterogeneous materials
S8: Strength of additive-manufactured materials
S9: Fracture and fatigue
S10: Advanced characterization of deformation processes
S11: Mechanistic foundations for multiscale modeling
S12: Glasses and non-crystalline solids
S13: Effects of hydrogen
S14: Materials under extreme conditions
S15: Strength of biomedical and bio-inspired materials
S16: Mechanics of composite materials

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 1 (103)

13:00 - 14:25

S1: Elementary deformation mechanisms (1)
Chair.: Peter M Anderson (The Ohio State University)

13:00
(Invited) On the low temperature plasticity of BCC metals
Daniel Caillard (CNRS)

13:20
(Invited) Carrier Induced Structural Change of Dislocation Cores in Inorganic Semiconductors Showing Distinctive Light-Dependent Mechanical Properties
Katsuyuki Matsunaga (Nagoya University), Shuji Oi (Nagoya University), Sena Hoshino (Nagoya University), Takumi Sato (Nagoya University), Tatsuya Yokoi (Nagoya University), Yu Ogura (Nagoya University)

13:40
On the anisotropy of serrated flow: insights from microcompression and TEM-based measurements
Henry Ovri (Helmholtz Zentrum Hereon)

13:55
Combination of modeling and electron microscopy methods for the characterization of elementary defects
Taupin Vincent (CNRS), Berbenni Stéphane (CNRS), Beausir Benoît (Université de Lorraine), Bouzy Emmanuel (Université de Lorraine), Ernould Clément (Université de Lorraine), Maloufi Nabila (Université de Lorraine), Guyon Julien (Université de Lorraine), Guitton Antoine (Université de Lorraine), Mandal Arka (Université de Lorraine), El-Ajjouri Fatin (Université de Lorraine), Cordier Patrick (Université de Lille), Gouriet Karine (Université de Lille), Mussi Alexandre (Université de Lille), Weidner Timmo (Université de Lille), Demouchy Sylvie (Géosciences Montpellier)

14:10
Electroplasticity and Photoplasticity of Ionic Crystals and Semiconductors at Small Scales
Yu Zou (University of Toronto)

14:50 - 16:30

S1: Elementary deformation mechanisms (2)
Chair.: Takeshi Nagase (University of Hyogo)

14:50
(Invited) The Revised Elastic Field of an Edge Dislocation
Peter M Anderson (The Ohio State University), John P Hirth (The Ohio State University)

15:10
(Invited) Prediction of Stroh-Hirth Lock Formation in Super-pure Aluminum at 298 K
Shigeo Saimoto (Queen's University, Kingston, Canada), Bradley J Diak (Queen's University, Kingston, Canada), Michael R Langille (Constellium Technology Center), Marek Niewczas (McMaster University)

15:30
Effect of free surfaces on dislocation elastic fields: application to threading dislocations in GaN
Fatin EL AJJOURI (University of Lorraine), Arka Mandal (University of Lorraine), Vincent Taupin (University of Lorraine), Antoine Guitton (University of Lorraine)

15:45
Unveiling All Possible Binary Dislocation Locks and Their Immobility in FCC Crystal Structure
Dhruv Bajaj (Toronto Metropolitan University), Daolun Chen (Toronto Metropolitan University)

16:00
Atomistic modelling of deformation behaviour: a case study in Cu-Al
Sushil Kumar (Indian Institute of Technology Bombay), Sanmugavel S (Indian Institute of Technology Bombay), Sandhya Verma (Indian Institute of Technology Bombay), Prita Pant (Indian Institute of Technology Bombay), Gururajan Pandurangan Mogadalai (Indian Institute of Technology Bombay)

16:15
Effect of Electron Motion on Stacking Fault in Metallic Materials
Tetsuya Matsunaga (Japan Aerospace Exploration Agency), Misa Kaiho (Yokohama National University), Yume Aoki (Yokohama National University), Kento Uchida (Kyoto University), Satoshi Kusaba (Yokohama National University), Ryo Tamaki (Yokohama National University), Jun Takeda (Yokohama National University), Koichiro Tanaka (Kyoto University), Ikufumi Katayama (Yokohama National University), Eiichi Sato (Apan Aerospace Exploration Agency)

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 2 (104)

13:00 - 14:00

S2: Micro- and nano-scale mechanical testing (1)
Chair.: Eita Tochigi (The University of Tokyo)

13:00
Play with defects: new insights into the size-dependent plasticity
Xianghai An (The University of Sydney)

13:15
Atomic-scale Studies of Cracking Process in Ceramics
Jingyuan Yan (The University of Tokyo), Shun Kondo (The University of Tokyo), Bin Feng (The University of Tokyo), Naoya Shibata (The University of Tokyo), Yuichi Ikuhara (The University of Tokyo)

13:30
Development of plastic deformability in high-strength ceramics by introducing refined fibrous microstructure
Yuta Aoki (The University of Tokyo), Hiroshi Masuda (The University of Tokyo), Eita Tochigi (The University of Tokyo), Hidehiro Yoshida (The University of Tokyo)

13:45
Evaluation of light illumination influence on dislocation behavior in III-V group semiconductors
Ryosuke Kinoshita (Osaka University), Yan Li (Osaka University), Hiroto Oguri (Osaka University), Eita Tochigi (The University of Tokyo), Atsutomo Nakamura (Osaka University)

14:50 - 16:25

S2: Micro- and nano-scale mechanical testing (2)
Chair.: Xianghai An (The University of Sydney)

14:50
(Invited) Operation of a MEMS-based in situ TEM mechanical testing system and applied research
Eita Tochigi (The University of Tokyo), Takaaki Sato (The University of Tokyo), Mingen Sou (The University of Tokyo), Naoya Shibata (The University of Tokyo), Yuichi Ikuhara (The University of Tokyo)

15:10
In-situ TEM observation of domain switching in nano-sized BaTiO3 single crystals caused by bending deformation
Shotaro Ikemoto (Kyoto University), Kota Sugisaka (Kyoto University), Masataka Abe (Kyoto University), Takashi Sumigawa (Kyoto University)

15:25
Oxygen strengthening of commercially pure titanium: a micro-pillar compression study
Jérémy Bernard (Centre national de la recherche scientifique (CNRS)), Clara Dufourg (Centre national de la recherche scientifique (CNRS)), Malo Jullien (Centre national de la recherche scientifique (CNRS)), Quentin Sirvin (Centre national de la recherche scientifique (CNRS)), Julien Genée (Centre national de la recherche scientifique (CNRS)), Henry Proudhon (Centre national de la recherche scientifique (CNRS)), Wolfgang Ludwig (ESRF - The European Synchrotron), Marc Legros (Centre national de la recherche scientifique (CNRS)), Damien Texier (Centre national de la recherche scientifique (CNRS))

15:40
From slow to extreme: evaluating hardness over eleven orders of magnitude in strain rate
Luciano Borasi (Northwestern University), Christopher A. Schuh (Northwestern University)

15:55
Mechanical Property Evaluation of Micro-Powders via Compression Tests and Machine Learning-Driven FEM Analysis
Tao Zhang (Tohoku University), Weiwei Zhou (Tohoku University), Naoyuki Nomura (Tohoku University)

16:10
Probing the Mechanical Strength of Manganese-Silicate Inclusions in Steel: Insitu Microcantilever Beam Testing
David Hernandez Escobar (École Polytechnique Fédérale de Lausanne), Sándor Lipcsei (École Polytechnique Fédérale de Lausanne), Andreas Mortensen (École Polytechnique Fédérale de Lausanne)

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 3 (C-1)

13:00 - 14:00

S3: Mechanical behavior of high entropy alloys (1)
Chair.: Rajarshi Banerjee (University of North Texas)

13:00
Improving accuracy of artificial neural networks used to reproduce potential energy surface in BCC multi-component alloys
Ivan Lobzenko (Japan Atomic Energy Agency), Tomohito Tsuru (Japan Atomic Energy Agency)

13:15
Mechanism and Prediction of Hydrogen Embrittlement in fcc Stainless Steels and High Entropy Alloys
Xiao Zhou (Shanghai Jiao Tong University), Ali Tehranchi (Max-Planck-Institut für Eisenforschung GmbH), William Curtin (Brown University)

13:30
Contiunous modeling of dislocation in concentrated random alloys
Pierre-Antoine Geslin (CNRS / INSA-Lyon), Vincent Demery (ESPCI ParisTech), Alberto Rosso (Univ. Paris-Saclay), David Rodney (Univ. Lyon 1)

13:45
Atomic-Scale Insights for Developing Intrinsically Ductile W-Containing Refractory High Entropy Alloys
MANISH RANJAN (Indian Institute of Technology Kanpur), Krishanu Biswas (Indian Institute of Technology Kanpur), Niraj Chawake (Indian Institute of Technology Kanpur)

14:50 - 16:25

S3: Mechanical behavior of high entropy alloys (2)
Chair.: Ivan Lobzenko (Japan Atomic Energy Agency)

14:50
(Invited) Introducing local chemical ordering to trigger a planar slip initiated strain hardening mechanism in high entropy alloys
Abhishek Sharma (University of North Texas), Sriswaroop Dasari (University of North Texas), Tirthesh Ingale (University of North Texas), Chao Jiang (Idaho National Laboratory), Bharat Gwalani (North Carolina State University), Srivilliputhur G Srinivasan (University of North Texas), Rajarshi Banerjee (University of North Texas)

15:10
Local chemical order enables an ultrastrong and ductile high-entropy alloy in a cryogenic environmen
Zhufeng He (Northeastern University), Lifang Sun (Northeastern University), Nan Jia (Northeastern University)

15:25
Effect of Titanium Addition on Mechanical Properties of Single-phase FCC High-entropy Alloys
Chenliang Chu (Kyoto University), Shuhei Yoshida (Kyoto University), Reza Gholizadeh (Kyoto University), Zhiqiang Fu (South China University of Technology), Hao Wang (South China University of Technology), Yan Chong (Kyoto University), Xiaoxu Huang (Chongqing University), Nobuhiro Tsuji (Kyoto University)

15:40
The Effect of of L12 nanoprecipitate properties on mechanical properties of CoNi-based multicomponent alloys
Amin Esfandiarpour (National Centre for Nuclear Research), Byeong-Joo Lee (Pohang University of Science and Technology), Mikko Alava (National Centre for Nuclear Research)

15:55
Structural evolution and tensile response of CrCoNi medium-entropy alloy thin films
JungHun Park (Korea Advanced Institute of Science and Technology), Gi-Dong Sim (Korea Advanced Institute of Science and Technology)

16:10
The deformation behaviors of CrFeCoNiMn0.75Cu0.25 high entropy alloy via laser shock peening
Wujing Fu (Nanjing Tech University), Guohua Fan (Nanjing Tech University), Yongjiang Huang (Harbin Institute of Technology)

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 4 (C-2)

13:00 - 14:05

S4: Effects of grain boundaries and interfaces (1)
Chair.: Ruixiao Zheng (Beihang University)

13:00
(Invited) Grain boundary induced hardening vs. softening in nanostructured Cu-X solid solutions
Karsten Durst (Technische Universitaet Darmstadt), Enrico Bruder (TU Darmstadt), Oliver Petry (TU Darmstadt)

13:20
Atomistic Insights into Grain Boundary Segregation and Plasticity in Magnesium Alloys
Hexin Wang (RWTH Aachen University), Anumoy Ganguly (RWTH Aachen University), Julien Guénolé (CNRS), Sandra Korte-Kerzel (RWTH Aachen University), Talal Al-Samman (RWTH Aachen University), Zhuocheng Xie (RWTH Aachen University)

13:35
Al2O3-WC ceramic composites with extremely improved mechanical strength by interfacial segregation of dilute dopants
Tomohiro Nishi (Niterra Co., Ltd), Katsuyuki Matsunaga (Nagoya University), Tomoko Hishida (Niterra Co., Ltd), Takeshi Mitsuoka (Niterra Co., Ltd), Yasuyuki Okimura (Niterra Co., Ltd), Yusuke Katsu (Niterra Co., Ltd)

13:50
Room-temperature plasticity in polycrystalline oxides: role of dislocation, grain boundary, and surface
Xufei Fang (Karlsruhe Institute of Technology), Chukwudalu Okafor (Karlsruhe Institute of Technology), Oliver Preuß (Technical University of Darmstadt), Kuan Ding (Technical University of Darmstadt), Jan Hoelschke (Technical University of Darmstadt), Atsutomo Nakamura (Osaka University)

14:50 - 16:30

S4: Effects of grain boundaries and interfaces (2)
Chair.: Karsten Durst (Technische Universitaet Darmstadt)

14:50
(Invited) Mechanisms of Abnormal Softening and Extra-hardening in Bulk Ultrafine-grained Metals
Ruixiao Zheng (Beihang University), Maowen Liu (Beihang University), Jun-Ping Du (Osaka University), Wu Gong (Japan Atomic Energy Agency), Chaoli Ma (Beihang University), Shigenobu Ogata (Osaka University), Nobuhiro Tsuji (Kyoto University)

15:10
(Invited) Evidence for a new work hardening stage at colossal strains
Oliver Renk (Montanuniversität Leoben), Anton Hohenwarter (Montanuniversität Leoben), Kaveh Edalati (Kyushu University), Reinhard Pippan (Austrian Academy of Sciences), Marlene Kapp (Austrian Academy of Sciences)

15:30
Research on the micro-deformation mechanisms and irradiation effects of high-entropy thin films
Li Jiang (Dalian University of Technology), Min Lu Wang (University of Michigan), Amit Misra (University of Michigan)

15:45
Hardening Mechanism Induced by Low-Temperature Annealing in High-Strength Nanostructured Cu-Si Solid-Solution Alloys Processed by the SPD
Takahiro Kunimine (Kanazawa University)

16:00
A Multiscale Approach to Incorporate Grain Boundary Slip Transmission in Crystal Plasticity Model for Polycrystal
Ayub Khan (Indian Institute of Technology Kanpur), Daniel Paquet (Hydro Quebec), Pritam Chakraborty (INDIAN INSTITUTE OF TECHNOLOGY KANPUR)

16:15
Grain Size Dependence of Elastic Aftereffect in Ultrafine-Grained Aluminum
Daisuke Terada (Chiba Institute of Technology), Takumi Sekiguchi (Chiba Institute of Technology), Naoki Motomura (Chiba Institute of Technology)

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 5 (G)

13:00 - 14:25

S5: High temperature deformation and creep (1)
Chair.: Steffen Neumeier (Friedrich-Alexander-Universität Erlangen-Nürnberg)

13:00
(Invited) High-temperature twinning and its impact on Ni base superalloys
Jae Bok Seol (Kookmin University), Won Hui Jo (Kookmin University), Cho Hyeon Lee (Kookmin University), Hyo Kyung Sung (Kookmin University), Jae Wung Bae (Pukyong National University), Jun Seob Lee (Changwon National University), Hyun Uk Hong (Changwon National University), Joong Eun Jung (Korea Institute of Materials Science), Young Kook Lee (Yonsei University)

13:20
(Invited) Microstructure-Based Modeling of Temperature-Dependent Yield Strength in Polycrystalline Ni-Based Superalloys
Uwe Glatzel (University of Bayreuth), Enrique Galindo-Nava (University of Cambridge), Howard Stone (University of Cambridge), Moritz Müller (University of Bayreuth)

13:40
Microstructure-determined rejuvenation behavior of high-temperature creep properties
Yunpeng Hu (Beihang University), Yi Ru (Beihang University), Boxuan Du (Beihang University), Yang Cao (Beihang University), Bin Gan (Suzhou City), Shan Li (Suzhou City), Zhuoyang Li (Beihang University), Xinyu Zhang (Beihang University), Yanling Pei (Beihang University), Shusuo Li (Beihang University), Shengkai Gong (Beihang University)

13:55
Influence of σ phase precipitation on high-temperature mechanical properties of a wrought Ni-base superalloy
Tim Storch (Ruhr-University Bochum), Gunther Eggeler (Ruhr-University Bochum), Guillaume Laplanche (Ruhr-University Bochum)

14:10
Effect of dynamic strain aging and grain boundary phases on the ductility of γ'-strengthened CoNiCr-base superalloys
Svetoslava Tsankova (Friedrich-Alexander-Universität Erlangen-Nürnberg), Manuel Köbrich (Friedrich-Alexander-Universität Erlangen-Nürnberg), Mathias Göken (Friedrich-Alexander-Universität Erlangen-Nürnberg), Steffen Neumeier (Friedrich-Alexander-Universität Erlangen-Nürnberg)

14:50 - 16:40

S5: High temperature deformation and creep (2)
Chair.: Jae Bok Seol (Kookmin University)

14:50
(Invited) Are faster or slower diffusing elements more effective in enhancing superalloy strength?
Steffen Neumeier (Friedrich-Alexander-Universität Erlangen-Nürnberg), Lukas Haußmann (Friedrich-Alexander-Universität Erlangen-Nürnberg), Andreas Bezold (Ohio State University), Mathias Göken (Friedrich-Alexander-Universität Erlangen-Nürnberg)

15:10
Solute Diffusion Dynamics in Low-Density Ni-Co Superalloys: Influence on Strength and Thermal Stability
Sudeepta Mukherjee (Iisc), Hemant Kumar (Iisc), B.S. Murty (IITH), Satyam Suwas (Iisc), Surendra Kumar Makineni (Iisc)

15:25
Evolution of the lattice plane spacings and the lattice misfit of a single crystalline Co-base superalloy during rafting
Jakob Bandorf (Friedrich-Alexander-Universität Erlangen-Nürnberg), Mathias Göken (Friedrich-Alexander-Universität Erlangen-Nürnberg), Steffen Neumeier (Friedrich-Alexander-Universität Erlangen-Nürnberg)

15:40
Enhanced Creep Strength of Co-based Superalloys Utilizing Local Phase Transformation Strengthening and CALPHAD Based Design
Ashton Egan (Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg), Longsheng Feng (Lawrence Livermore National Laboratory), Christopher Zenk (Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg), Yunzhi Wang (The Ohio State University), Michael J Mills (The Ohio State University), Steffen Neumeier (Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg), Erdmann Spiecker (Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg), Mathias Göken (Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg)

15:55
On the Effect of Temperature and Stress Cycling on the Formation of TCP Phases in Single Crystal Ni-base Superalloys
Takuma Saito (Ruhr-University Bochum), Christoph Somsen (Ruhr-University Bochum), Antonín Dlouhý (Czech Academy of Sciences), Gunther Eggeler (Ruhr-University Bochum)

16:10
Management of Reference Data in Materials Science and Engineering Exemplified for Creep Data of a Single Crystalline Ni Based Superalloy
Luis Alexander Ávila (Bundesanstalt für Materialforschung und - prüfung (BAM))

16:25
Strain rate dependent deformation in nanotwinned copper at high temperature
Gulnaz Parween (Indian Institute of Technology Kanpur, India), Kang Ping Lee (National Yang Ming Chiao Tung University, Taiwan), Bo Yan Chen (National Yang Ming Chiao Tung University, Taiwan), Chih Chen (National Yang Ming Chiao Tung University, Taiwan), Nilesh Badwe (Indian Institute of Technology Kanpur, India)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 6 (H)

13:00 - 14:20

S6: Mechanical behavior associated with phase transformations (1)
Chair.: David S Wilkinson (McMaster University)

13:00
(Invited) Modulating Yield Ratio via Control of PhaseTransformation Kinetics in Metastable Beta Titanium Alloy
Xiaoli Zhao (Northeastern University), Mengrui Zhang (Northeastern University), Deliang Zhang (Northeastern University), Mitsuo Niinomi (Osaka University), Masaaki Nakai (Kindai University), Wu Gong (Japan Atomic Energy Agency), Takayoshi Nakano (Osaka University)

13:20
Static Spheroidization Kinetics in Direct Energy Deposited Ti-6Al-4V Alloy
Saumya Gupta (Indian Institute of Technology Kharagpur), Subhadeep Sinha (Indian Institute of Technology, Gandhinagar), Shibayan Roy (Indian Institute of Technology Kharagpur)

13:35
Laser-ultrasonic characterization of anisotropic elasticity of shape memory alloys
Pavla Stoklasova (Institute of Thermomechanics, Czech Academy of Sciences), Tomas Grabec (Institute of Thermomechanics, Czech Academy of Sciences), Martin Sevcik (Institute of Thermomechanics, Czech Academy of Sciences), Petr Sedlak (Institute of Thermomechanics, Czech Academy of Sciences), Hanus Seiner (Institute of Thermomechanics, Czech Academy of Sciences)

13:50
Effect of high temperature exposure in air on the deformation mechanisms of intermetallic γ-TiAl alloys
Frederic HABIYAREMYE (Université Toulouse III—Paul Sabatier), Daniel Monceau (2Université Toulouse III—Paul Sabatierse), Damien Connétable (2Université Toulouse III—Paul Sabatierse), Kamal Nayan Goswam (2Université Toulouse III—Paul Sabatier), Michal Kuris (Université Paris-Saclay), Thomas Vaubois (Safran Tech), Sallot Sallot (Safran Tech), Maria Tsoutsouva (Université Paris-Saclay), Marc Thomas (Université Paris-Saclay), Damien Texier (2Université Toulouse III—Paul Sabatier), Jean-Philippe Monchoux (2Université Toulouse III—Paul Sabatier)

14:05
Mechanical properties of MAX-phase coatings on TiAl-base alloys
Julian Zander (DECHEMA Research Institute), Katharina Beck (DECHEMA Research Institute), Ceyhun Oskay (DECHEMA Research Institute), Lukas Mengis (-), Nadine Laska (German Aerospace Research and Technology Centre – DLR), Ronja Anton (German Aerospace Research and Technology Centre – DLR), Mathias Galetz (DECHEMA Research Institute)

14:50 - 16:45

S6: Mechanical behavior associated with phase transformations (2)
Chair.: Xiaoli Zhao (Northeastern University)

14:50
(Invited) Effect of Microstructure on Strain Partitioning and Damage in Medium Mn High Strength Steels
David S Wilkinson (McMaster University), Cocetta Pelligra (McMaster University), Jidong Kang (Natural Resources Canada)

15:10
(Invited) On the role of austenite stability in yielding behavior of ultrahigh strength medium Mn steels
Hao Chen (Tsinghua university), Yan Wang (Tsinghua university), Youyou Zhang (Tsinghua university)

15:30
Deformation behaviour analysis of lath martensite crystallography: influence of tensile properties in low carbon Nb-V steel
Murugesh kumar Ramar (Indian institute of technology Roorkee), Sadhan Ghosh (Indian institute of technology)

15:45
High temperature uniaxial deformation of carbide free bainitic steel
Kishore Sakthivel (IIT Roorkee), Sourav Das (IIT Roorkee)

16:00
Superior strength-ductility-bendability combination and marginal oxidation in 2000 MPa grade hot-stamped steel
Hesong Wang (Institute of Metal Research, Chinese Academy of Sciences), Fengkai Yan (Institute of Metal Research, Chinese Academy of Sciences), Zhiyuan Chang (Pangang Group)

16:15
Transition in deformation behavior of heat-treated superalloy 625: Predicting flow stress curves using a physics-based model
Sonika Chahar (Indian Institute of Technology Roorkee), Suhrit Mula (Indian Institute of Technology Roorkee)

16:30
ε-carbide-induced fresh martensite to produce strong dual phase low carbon steel
Won Hui Jo (Kookmin university), Cho Hyeon Lee (Kookmin university), Seonghyeon Yang (Gyeongsang national university), Jeong Woong Park (Kookmin university), Min Young Lee (Kookmin university), Taehyeong Kim (Pukyong national university), Junseok Lee (Pukyong national university), Seong-Tak Oh (Hyundai-steel), Yong-Min Hyun (Hyundai-steel), Jae Wung Bae (Pukyong national university), Jae Bok Seol (Kookmin university)

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 7 (501)

13:00 - 14:20

S7: Mechanical behavior of heterogeneous materials (1)
Chair.: Serveh Kamrava (Colorado School of Mines)

13:00
(Invited) Strength-Ductility Mechanisms of Heterostructured Alloys
Wang Jian (University of Nebraska - Lincoln)

13:20
Plastic deformation mechanism for layered-heterostructure Ti2AlNb alloy
Wei Tang (Harbin Institute of Technology)

13:35
Influence of Temperature on Deformation Mechanisms and Mechanical Properties of Commercial-Purity Titanium Sheets with Different Grain Sizes
Chihiro Watanabe (Kanazawa University), Norimitsu Koga (Kanazawa University), Tomotsugu Shimokawa (Kanazawa Univeristy), Yojiro Oba (Toyohashi University of Technology), Masakazu Kobayashi (Toyohashi University of Technology), Hiromi Miura (Toyohashi University of Technology)

13:50
Understanding the Tensile Behavior of a Cu-Fe Laminated Metal Composite by Unraveling the Individual Stress-Strain Responses of Cu and Fe Layers
DONGSHENG FU (Kyoto university), SI GAO (Kyoto university), WENQI MAO (Northeastern University (China)), WU GONG (Japan Atomic Energy Agency), NOBUHIRO TSUJI (Kyoto university)

14:05
Oxygen impurity-tuned structure and adhesion properties of Cu/SiO2 interface
Mengdie Lan (Xi'an Jiaotong University)

14:50 - 16:15

S7: Mechanical behavior of heterogeneous materials (2)
Chair.: Wang Jian (University of Nebraska - Lincoln)

14:50
Superior strength–ductility synergy in three-dimensional heterogeneous-nanostructured metals
Guodong Li (Beihang University), Ruixiao Zheng (Beihang Univerisity), Chaoli Ma (Beihang University), Xiaoyan Li (Tsinghua University), Si Gao (Kyoto Univeristy), Ameyama Kei (Ritsumeikan University)

15:05
Effects of lamellae direction on deformation behavior in directionally-solidified AlCoCrFeNi2.1 eutectic high entropy alloy
Jinge Yan (Kyoto University), Shuhai Yoshida (Kyoto University), Myeong-heom Park (Kyoto University), Wu Gong (J-PARC Center), Stefanus Harjo (J-PARC Center), Nobuhiro Tsuji (Kyoto University)

15:20
Deformation Behavior of Metallic Materials with Gradient and Core-Shell Microstructures
Praveen Kumar (Indian Institute of Technology Bombay), Bangmaya Satpathy (Indian Institute of Technology Bombay), Suresh Kumar Masa (CSIR-National Aerospace Laboratories), Javed S. Ibrahim (Indian Institute of Technology Bombay), A. Gourav Rao (Naval Material Research Laboratory), M.J.N.V. Prasad (Indian Institute of Technology Bombay)

15:35
Machine Learning Aided Materials Property Optimization
Serveh Kamrava (Colorado School of Mines), Hossein Mirzaee (Colorado School of Mines), Pejman Tahmasebi (Colorado School of Mines)

16:00
Heterogeneous Interface Mismatch-Enhanced Metal-Organic Frameworks (MOFs)-Based Electrochemical Actuators
Hongyu Cao (Xi'an Jiaotong University)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 8 (510)

13:00 - 14:05

S8: Strength of additive-manufactured materials (1)
Chair.: Ludmila Kucerova (University of West Bohemia)

13:00
(Invited) Shear and Compressive Deformation Behaviors of Additively Manufactured Lattice Structures
Gitaek Lee (POSTECH), Hyoung Seop Kim (POSTECH)

13:20
Investigation of the Strength of Additively Manufactured Materials Subjected to Fretting Fatigue Loading Conditions
Grzegorz Glodek (KU Leuven), Sanjay Gothivarekar (KU Leuven), Brecht Van Hooreweder (KU Leuven), Reza Talemi (KU Leuven)

13:35
Comparative Study of Mechanical Property Testing Methods for Additive Manufactured Metal Parts
Junbeom Kwon (Korea Institute of Materials Science), Seung-yong Lee (Korea Institute of Materials Science), Yongnam Kim (Korea Institute of Materials Science)

13:50
Microstructural and Mechanical Property Analysis of Thin-Walled Ti-6Al-4V Produced by Powder-Based Directed Energy Deposition
Rohan Jain (IIT Bombay), M.J.N.V Prasad (IIT Bombay), Anil Kumar Vesangi (Vikram Sarabhai Space Center, Trivandrum), Prita Pant (IIT Bombay)

14:50 - 16:20

S8: Strength of additive-manufactured materials (2)
Chair.: Hyoung Seop Kim (POSTECH)

14:50
Revealing and manipulating strengthening mechanisms in additively manufactured Ti−6Al−4V alloys via electron beam powder bed fusion
Kenta Yamanaka (Tohoku University), Manami Mori (National Institute of Technology, Sendai College), Neeraphat Kunbuala (King Mongkut's Institute of Technology Ladkrabang), Phacharaphon Tunthawiroon (King Mongkut's Institute of Technology Ladkrabang), Shota Kariya (Osaka University), Katsuyoshi Kondoh (Osaka University), Yusuke Onuki (Tokyo Denki University), Shigeo Sato (Ibaraki University), Akihiko Chiba (New Industry Creation Hatchery Center)

15:05
A newly additive-manufacturable Nickel-base superalloys with ultrahigh strength-ductility synergy
Li Liang (University of Science and Technology of China), Wei Tong (University of Science and Technology of China), Nobuhiro Tsuji (Kyoto University)

15:20
Optimization of Ti-6Al-4V alloy obtained by additive manufacturing using direct wire deposition for critical aerospace applications
Elise Labruyere (CEMES CNRS - Airbus Operation), Joël Douin (CEMES CNRS), Florence Pettinari-Sturmel (CEMES CNRS), Claude Archambeau (Airbus Operation S.A.S), Philippe Emile (Airbus Operation S.A.S)

15:35
Additive Friction Stir Deposition of Dual-Phase Brass: Microstructure and Mechanical Properties
Meet Vinodkumar Gor (IIT Hyderabad), Pinaki Prasad Bhattacharjee (IIT Hyderabad), Daniel Fabijanic (Deakin University)

15:50
A Study a Dissimilar Weld Joints of Additive-manufactured & Wrought 17-4PH Stainless Steel to Enhance Mechanical Properties and Strain Incompatibility
Ha-Yeon Joo (Changwon national university), Ji-Won Lee (Doosan Enerbility), Yong-Hyeok Choi (Doosan Enerbility), Jung-Min Han (Doosan Enerbility), Hyun-Uk Hong (Changwon national university)

16:05
Effect of nitrogen atmosphere on the printability, microstructure, precipitation, and mechanical properties of laser powder bed fused Fe-xCr alloys
Siyuan Wei (Agency for Science, Technology and Research (A*STAR))

Program at a Glance

Day 2: Tuesday - June 3rd

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 9 (555)

13:00 - 14:20

S9: Fracture and fatigue (1)
Chair.: Kazuki Shibanuma (The University of Tokyo)

13:00
(Invited) Micromechanical Model for Prediction of Fracture in Polycrystalline Materials
Min Zhou (Georgia Institute of Technology), Tengyuan Hao (Georgia Institute of Technology), William T. Ragan (Georgia Institute of Technology)

13:20
A Strain Energy Formulation Coupled with Graph for Fracture Modeling in Granular Materials
Pejman Tahmasebi (Colorado School of Mines)

13:35
Measurement of Fatigue Crack Growth without Additional Sensors
Bongsang Lee (Korea Atomic Energy Research Institute), Min-Chul Kim (KAERI), Jong-Min Kim (KAERI)

13:50
Nano-Scale Investigations of the Effects of Pre-deformation and Irradiation on the Fracture of Tungsten
Erik Bitzek (Max Planck Institute for Sustainable Materials), Benedikt Eggle-Sievers (MPI SusMat), Stefan Gabel (FAU), Manuel Köbrich (FAU), Michael Wurmshuber (FAU), Benoit Merle (University of Kassel), Mathias Göken (FAU)

14:05
Shape optimization of twin bridge specimen to characterize shear fracture behavior of sheet materials with constant triaxiality
Yongnam Kim (Korea Institute of Materials Science), Junbeom Kwon (Korea Institute of Materials Science), Seung-Yong Lee (Korea Institute of Materials Science)

14:50 - 16:25

S9: Fracture and fatigue (2)
Chair.: Min Zhou (Georgia Institute of Technology)

14:50
(Invited) Prediction of Fatigue Life of Steels Based on Multiscale Modeling Strategy
Kazuki Shibanuma (The University of Tokyo)

15:10
Effect of cyclic hardening/softening of surface layer and core region on compressive residual stress change behavior of FPP-treated AISI 316L steel
Tomofumi Aoki (Keio Univ.), Jun Komotori (Keio. Univ.)

15:25
Effects of Grain Size on High-Cycle Fatigue Strength at 77 K for 22Cr-13Ni-(Mn, Mo, Nb, V) Nitrogen-Strengthened Austenitic Stainless Steel
Kasem Charoenrut (Yokohama National University), Osamu Umezawa (Yokohama National University), Yoshinori Ono (National Institute of Materials Science), Masayuki Komatsu (National Institute of Materials Science)

15:40
Predicting fatigue life under complex loads: from steel wire to cable
M. Gaudillat (Université Paris-Saclay), C. Gandiolle (Université Paris-Saclay), L. Larippe (Michelin), N. Mary (INSA Lyon), O. Téraube (Michelin), G. Cousinet (Michelin), E. Poncelin De Raucourt (Michelin), V. Aubin (Université Paris-Saclay)

15:55
High cycle fatigue properties of novel Ti/Nb stabilized Al-rich interstitial free steels
BENJAMIN GUENNEC (Tokyo Denki University), RAMEEZ R. TAMBOLI (IITH), KENTARO NAGANO (Ritsumeikan Univeristy), TAKAHIRO KINOSHITA (Toyama Prefectural University), NORIYO HORIKAWA (Toyama Prefectural University), HIROSHI FUJIWARA (Ritsumeikan University), BASUDEV BHATTACHARYA (Tata Steel Ltd), SUHASH R. DEY (IITH)

16:10
Internal crack initiation in rolling-sliding contact fatigue for nitirided and quenched low-alloy steel
Kanta YAMAMICHI (Yokohama National University), Osamu UMEZAWA (Yokohama National University)

Program at a Glance

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room1 (103)

11:00 - 12:05

S1: Elementary deformation mechanisms (3)
Chair.: Kyosuke Kishida (Kyoto University)

11:00
(Invited) Mechanism on discontinuous yielding in Nb microalloyed steels
Haiwen Luo (University of Science and Technology Beijing)

11:20
Understanding formability and fracture of imperfectly roll-bonded sheet metal
Cem Tasan (MIT), O Guvenc (MIT), C J.A. Mornout (MIT), A Sharda (MIT), E Senvardarli (MIT)

11:35
Deformation Behavior in the Stir Zone of Friction Stir Welded Duplex Stainless Steel Monitored by In-situ Neutron Diffraction During Tension
Takayuki Yamashita (Osaka University), Wu Gong (Japan Atomic Energy Agency), Stefanus Harjo (Japan Atomic Energy Agency), Takuro Kawasaki (Japan Atomic Energy Agency), Kohsaku Ushioda (Osaka University), Hidetoshi Fujii (Osaka University)

11:50
Design and Preparation of High Strength Non-oriented Silicon Steel based on NiAl Precipitates
Feng Fang (Northeastern University, China), Diwen Hou (Northeastern University, China), Shuaifa Dai (Northeastern University, China), Yuanxiang Zhang (Northeastern University, China), Yang Wang (Northeastern University, China), Guo Yuan (Northeastern University, China), Guodong Wang (Northeastern University, China)

13:40 - 15:15

S1: Elementary deformation mechanisms (4)
Chair.: Haiwen Luo (University of Science and Technology Beijing)

13:40
(Invited) Zonal Dislocations in Sigma-FeCr with the Tetragonal D8b Structure
Kyosuke Kishida (Kyoto University), Haruyuki Inui (Kyoto University)

14:00
Elimination of oxygen-induced embrittlement in Ti -compositional and structural strategies
Yan Chong (Suzhou Laboratory), Reza Gholizadeh (Kyoto University), Tomohito Tsuru (Japan Atomic Energy Agency), Nobuhiro Tsuji (Kyoto University)

14:15
Dislocation models for deformation twinning and martensitic transformation
Tae-Ho LEE (Korea Institute of Materials and Science), Heon-Young HA (Korea Institute of Materials and Science), Seong-Hoon KIM (Korea Institute of Materials and Science)

14:30
Enhancing the mechanical properties of TWIP alloys by generalized stacking fault energy engineering
Antoine Hilhorst (UCLouvain), Victor Trinquet (UCLouvain), Gian-Marco Rignanese (UCLouvain), Pascal J. Jacques (UCLouvain)

14:45
Role of stress-induced martensitic transformation on twinning in beta titanium alloys
Nicolas Jobit (INSA Rennes), Philippe Castany (INSA Rennes), Fan Sun (Chimie ParisTech), Thierry Gloriant (INSA Rennes), Frederic Prima (Chimie ParisTech)

15:00
The interplay of deformation mechanisms and mechanical characteristics in interstitial-strengthened titanium alloys
Guohua Zhao (Kyoto University), Yan Chong (Kyoto University), Nobuhiro Tsuji (Materials Science and Engineering)

15:35 - 16:55

S12: Glasses and non-crystalline solids
Chair.: Ting Zhu (Georgia Institute of Technology)

15:35
(Invited) Anomalous Shear Band Evolution Behavior in Zr-based Metallic Glass with a Gradient Rejuvenation Structure
Junji Saida (Tohoku University), Masaki Sugisawa (Tohoku University), Keisuke Tabaru (Tohoku University), Ryota Maeda (Tohoku University), Rui Yamada (Tohoku University)

15:55
Characterizing Bulk Metallic Glasses: Statistical Nanoindentation at Ambient and High Temperatures
Silvia Pomes (NIMS), Nozomu Adachi (Toyohashi University of Technology), Masato Wakeda (NIMS), Takahito Ohmura (NIMS)

16:10
Inertia effect of deformation in amorphous solids: a dynamic mesoscale model
Min-Qiang Jiang (Institute of Mechanics, Chinese Academy of Sciences)

16:25
Structural and Dynamical Properties of Mg-Zn-Y Alloys During Rapid Cooling: A Combined First-Principles and Machine-Learning Potential Study
Takao Tsumuraya (Kumamoto University), Kohei Shimamura (Kumamoto University), Soya Nishimoto (Kumamoto University), Akihide Koura (Kumamoto University), Fuyuki Shimojo (Kumamoto University), Yoshihito Kawamura (Kumamoto University)

16:40
Investigating Amorphous-Crystalline Transitions in Fe-W Alloys via Combinatorial Methods
Kyle Russell (University of Southern California), Carl Kohnke (University of Southern California), Jason Trelewicz (Stony Brook University), Andrea M Hodge (University of Southern California)

Program at a Glance

Day 3: Wednesday - June 4th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room2 (104)

11:00 - 12:20

S2: Micro- and nano-scale mechanical testing (3)
Chair.: Jun Ding (Xi'an Jiaotong University)

11:00
(Invited) Determining the evolution of anisotropic yield behavior in cold-drawn pearlitic steel wires using Knoop microhardness
Denis SOLAS (Universite Paris-Saclay), A. Boujnah (Michelin), S. Konate (Universite Paris-Saclay, CentraleSupélec, ENS Paris-Saclay), N. Roubier d'Herembault (Universite Paris-Saclay, CentraleSupélec, ENS Paris-Saclay), A. Jamoneau (Michelin), J.-H. Schmitt (Universite Paris-Saclay, CentraleSupélec, ENS Paris-Saclay), J. Neggers (Universite Paris-Saclay, CentraleSupélec, ENS Paris-Saclay), V. Aubin (Universite Paris-Saclay, CentraleSupélec, ENS Paris-Saclay)

11:20
Micromechanical Properties of Copper Microarchitectures: Study of Temperature and Rate Dependency
Sung-Gyu Kang (Gyeongsang National University), Bárbara Bellón (Max-Planck-Institut für Nachhaltige Materialien), Lalith Kumar Bhaskar (Max-Planck-Institut für Nachhaltige Materialien), Siyuan Zhang (Max-Planck-Institut für Nachhaltige Materialien), Kuan Ding (Max-Planck-Institut für Nachhaltige Materialien), Alexander Götz (Friedrich-Alexander-Universitat Erlangen-Nürnberg), Janis Wirth (Friedrich-Alexander-Universitat Erlangen-Nürnberg), Benjamin Apeleo Zubiri (Friedrich-Alexander-Universitat Erlangen-Nürnberg), Erdmann Spiecker (Friedrich-Alexander-Universitat Erlangen-Nürnberg), Gerhard Dehm (Max-Planck-Institut für Nachhaltige Materialien), Rajaprakash Ramachandramoorthy (Max-Planck-Institut für Nachhaltige Materialien)

11:35
Prediction of tensile properties from sharp indentation using neural network-based model without non-uniqueness problem
Jong-hyoung Kim (Pukyong National University), Hyun-Wook Cho (Pukyong National University), Si Hyun Park (Pukyong National University), Jongheon Kim (LG Electronics), Seung-Kyun Kang (Seoul National University)

11:50
Unique tension-compression cyclic deformation behavior of nano-sized gold single crystal
Masahiro Kato (Kyoto university), Kota Sugisaka (Kyoto univerisity), Yamato Ishizaka (Kyoto university), Masataka Abe (Kyoto university), Takashi Sumigawa (Kyoto university)

12:05
Constant strain rate nanoindentation up to 10,000 per second for reliable extraction of deformation activation parameters
Aloshious Lambai (Tampere University), Rahul Cherukuri (Tampere University), Nidhin George Mathews (Tampere University), Suprit Bhusare (Tampere University), Lalith Kumar Bhaskar (Max-Planck-Institute for Sustainable Materials), Jakob Schwiedrzik (Empa - Swiss Federal Laboratories for Materials Science and Technology), Johann Michler (Empa - Swiss Federal Laboratories for Materials Science and Technology), Rajaprakash Ramachandramoorthy (Max-Planck-Institute for Sustainable Materials), Gaurav Mohanty (Tampere University)

13:40 - 15:15

S2: Micro- and nano-scale mechanical testing (4)
Chair.: In-Suk Choi (Seoul National University)

13:40
(Invited) Origin of the high propensity for nanoscale deformation twins in CrCoNi medium-entropy alloy
Jun Ding (Xi'an Jiaotong University), Zhangjie Wang (Xi'an Jiaotong University), Zhiwei Shan (Xi'an Jiaotong University), Evan Ma (Xi'an Jiaotong University)

14:00
Effect of Al-Content on the Rate Sensitivity Properties in Alpha-Titanium
Zachary T Kloenne (Imperial College London), Siyang Wang (Imperial College London), Oscar Langdon (Imperial College London), Nigel Martin (Rolls Royce, UK), Fionn P.E. Dunne (Imperial College London), David Dye (Imperial College London)

14:15
Strain rate and temperature effects in slip activity in Titanium IMI834
Xavier Agustin Ojeda (University of Manchester), Philip John Withers (University of Manchester), João Quinta da Fonseca (University of Manchester), Katharine Fox (Rolls-Royce plc), Nigel Martin (Rolls-Royce plc)

14:30
Nickel base multilayer systems: A study on manufacturing, interface testing and fatigue crack growth characterization
Jutta Luksch (Saarland University), Johannes Niegisch (Saarland University), Maike Jordt (Saarland University), Marion Weissenberger (Saarland University), Christoph Pauly (Saarland University), Florian Schäfer (Saarland University), Christian Motz (Saarland University)

14:45
Grain boundary sliding in nickel bicrystals: Insights from micropillar compression at elevated temperatures
DIVYA SRI BANDLA (KARLSRUHE INSTITUTE OF TECHNOLOGY), SUBIN LEE (KARLSRUHE INSTITUTE OF TECHNOLOGY), CHRISTOPH KIRCHLECHNER (KARLSRUHE INSTITUTE OF TECHNOLOGY)

15:00
Mechanistic insights into dislocation-precipitates interactions in Ni-Based superalloys via high temperature micromechanical testing
Subin Lee (Karlsruhe Institute of Technology), Sangwon Lee (Korea Advanced Institute of Science and Technology), Ujjval Bansal (Karlsruhe Institute of Technology), Pyuck-Pa Choi (Korea Advanced Institute of Science and Technology), Christoph Kirchlechner (Karlsruhe Institute of Technology)

15:35 - 16:50

S2: Micro- and nano-scale mechanical testing (5)
Chair.: Christoph Kirchlechner (Karlsruhe Institute of Technology)

15:35
Brittle to Ductile Transition: Viscoplastic Deformation and Mechanical Amorphization of Amorphous and Crystalline Silica under E-Beam Irradiation
Jeongin Paeng (Seoul National University), Sung-gyu Kang (Gyeongsang National University), Heung Nam Han (Seoul National University), In-Suk Choi (Seoul National University)

15:50
Membrane Deflection Characterization of NiTi Thin Films at Elevated Temperatures
Zhuo Feng Lee (Korea Advanced Institute of Science and Technology), Yuhyun Park (Korea Advanced Institute of Science and Technology), Hojang Kim (Korea Advanced Institute of Science and Technology), Ji-Young Kim (Korea Advanced Institute of Science and Technology), Hyemin Ryu (Korea Advanced Institute of Science and Technology), Gi-Dong Sim (Korea Advanced Institute of Science and Technology)

16:05
Influence of Atmospheric Plasma Spraying Parameters on the Mechanical Properties of Y2O3 Coatings
Yeon Woo Yoo (Korea Institute of Materials Science), Sung-Gyu Kang (Gyeongsang National University), Yong-Jin Kang (Korea Institute of Materials Science), Youngjin Park (Korea Institute of Materials Science), Sunghun Lee (Korea Institute of Materials Science)

16:20
High temperature yield strength anomaly in MnS
Maximilian Aeneas Wollenweber (RWTH Aachen University), Jonas Werner (RWTH Aachen University), Carl Felix Kusche (RWTH Aachen University), Talal Al-Samman (RWTH Aachen University), Sandra Korte-Kerzel (RWTH Aachen University)

16:35
Mechanical and photophysical response of luminescent molecular crystalline materials
Yuichi Hirai (National Institute for Materials Science), Takashi Takeda (National Institute for Materials Science), Takayuki Nakanishi (National Institute for Materials Science), Takahito Ohmura (National Institute for Materials Science)

Program at a Glance

Day 3: Wednesday - June 4th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 3 (C-1)

11:00 - 12:25

S10: Advanced characterization of deformation processes (1)
Chair.: Wenjun Lu (Southern university of science and technology)

11:00
(Invited) Dynamic recovery in Aluminum alloys
Christopher Hutchinson (Monash University), Yixin Wang (Monash University), Yves Brechet (Monash University)

11:20
(Invited) Deformation and damage behavior of aluminum matrix foam composites
Qiang Zhang (Harbin Institute of Technology)

11:40
Evaluation of slip behavior of mobile dislocations during in-situ tensile-testing TEM observation of Al-Mg-Si alloys
Daiki Inoue (Yokohama National University), Shoichi Hirosawa (Yokohama National University)

11:55
Evolution of internal strains during cyclic deformation of aluminum: high-resolution reciprocal space mapping and elasto-viscoplastic FFT simulation
Thomas Kohne (Technical University of Denmark), Mirsolav Zecevic (Los Alamos National Laboratory), Zoltan Hegedues (Deutsches Elektronensynchrotron), Ulrich Lienert (Deutsches Elektronensynchrotron), Ricardo A Lebensohn (Los Alamos National Laboratory), Wolfgang Pantleon (Technical University of Denmark)

12:10
Exploring Microstructural and Mechanical Diversity in Al-Si Casting Alloys: Nanoindentation Mapping and Machine Learning Applications
Moon-Jo Kim (Korea Institute of Industrial Tehcnology), Daehyun Kim (Gangneung-Wonju National University), Sunghee Han (Gangneung-Wonju National University), DongEung Kim (Korea Institute of Industrial Technology), Jungho Shin (Gangneung-Wonju National University)

13:40 - 14:40

S10: Advanced characterization of deformation processes (2)
Chair.: Christopher Hutchinson (Monash University)

13:40
Grain refinement of LPSO phase using heavy deformation and subsequent recrystallization in Mg85Y8Zn7 alloy
Chunyu Wang (Kyoto university), Myeong-heom Park (Kyoto University), Taiki Nakata (Nagaoka University of Technology), Nobuhiro Tsuji (Kyoto University)

13:55
Effects of alloying element on dynamic recrystallization behavior and microstructure evolution in magnesium alloys
Motohiro YUASA (Doshisha University), Riku OHNISHI (Doshisha University), Hiromasa YOSHIZUMI (Doshisha University), Hiroyuki MIYAMOTO (Doshisha University), Hidetoshi SOMEKAWA (National Institute for Materials Science,)

14:10
Grain Size Dependence of Twinning Behavior in Polycrystalline Pure-Mg
Saho Yako (Kyoto Univ.), Myeong-heom Park (Kyoto Univ.), Nobuhiro Tsuji (Kyoto Univ.)

14:25
Understanding the deformation behaviour of Advanced Mg-based rare earth alloys
Hemant Kumar (Indian Institute of Science Bangalore), Shashwat Kumar Mishra (Indian Institute of Science, Bangalore), Praveen Kumar (Indian Institute of Science, Bangalore), Surendra Kumar Makineni (Indian Institute of Science, Bangalore)

15:35 - 16:40

S10: Advanced characterization of deformation processes (3)
Chair.: Hiromoto Kitahara (Kumamoto University)

15:35
(Invited) Exploring the Dynamic Behavior of Compositionally Complex Alloys through Real-Time Observation with In Situ TEM/STEM
Wenjun Lu (Southern university of science and technology)

15:55
The dynamics of dislocations in the Cantor alloy studied by in situ TEM straining and machine learning
Hengxu SONG (Forschungszentrum Jülich), Kishan GOVIND (Forschungszentrum), Binh Duong NGUYEN (Forschungszentrum), Anna FRACZKIEWICZ (Ecole des Mines Saint Etienne), Antonin DLOUHY (Czech Academy of Sciences), Stefan SANDFELD (Forschungszentrum), Marc LEGROS (CNRS)

16:10
Tunable mechanical properties of SrTiO3 ceramic by modulating dislocation densities
Jiawen Zhang (Southern University of Science and Technology), Xufei Fang (Karlsruhe Institute of Technology), Wenjun Lu (Southern University of Science and Technology)

16:25
“In-situ observation” of melting and solidification process of cold crucible UO2
Shu Wang (Harbin Institute of Technology), Peng Jian Tan (Harbin Institute of Technology), Fu Xiao Zhang (Harbin Institute of Technology), Zhi De Chen (Harbin Institute of Technology), Peng Wei Xu (Harbin Institute of Technology), Qi Wang (Harbin Institute of Technology), Ze Hong Fang (Harbin Institute of Technology), Run Rui Chen (Harbin Institute of Technology)

Program at a Glance

Day 3: Wednesday - June 4th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 4 (C-2)

11:00 - 12:15

S4: Effects of grain boundaries and interfaces (3)
Chair.: Shigeaki Kobayashi (Ashikaga University)

11:00
Aging Precipitation Behavior near The Grain Boundaries of Age Hardenable Aluminum Alloy
Ken-ichi Ikeda (Hokkaido University), Takuya Hashimoto (Hokkaido University), Seiji Miura (Hokkaido University)

11:15
Evading the strength and electrical conductivity trade-off in Cu-Ni-Si alloys by cryogenic rolling and aging
Hailong Shi (Harbin Institute of Technology), Xuejian Li (Harbin Institute of Technology), Xiaoshi Hu (Harbin Institute of Technology), Chao Xu (Harbin Institute of Technology), Xiaojun Wang (Harbin Institute of Technology)

11:30
Role of Zn addition on microstructure and mechanical properties of Mg-1.2Al-0.4Ca-0.2Ce alloy
MD IRFAN ALI (Indian institute of technology Kanpur, Kanpur, India), Srinu Gangolu (Indian Institute of technology Kanpur), Niraj Chawake (Indian Insititute of Technology Kanpur), A.Dugra Prasad (Tata Steel limited)

11:45
Achieving high strength and ductility in rare-earth free Magnesium alloy processed by rotary swaging
Leyun Wang (Shanghai Jiao Tong University), Yunhao Fan (Shanghai Jiao Tong University), Boyu Liu (Xi'an Jiaotong University), Hao Wang (Chinese Academy of Sciences)

12:00
Interface Characterization of the T-Phase in Al-Zn-Mg Alloy
Abrar Ahmed (University of Toyama), Kenji Matsuda (University of Toyama), Seungwon Lee (University of Toyama), Taiki Tsuchiya (University of Toyama), Katsuhiko Nishimura (University of Toyama), Norio Numomura (University of Toyama), Hiroyuki Toda (Kyushu University), Kyosuke Hirayama (Kyoto University), Kazuyuki Shimizu (Tottori University), Masatake Yamaguchi (Japan Atomic Energy Agency), Tomohito Tsuru (Japan Atomic Energy Agency)

13:40 - 15:20

S4: Effects of grain boundaries and interfaces (4)
Chair.: Ken-ichi Ikeda (Hokkaido University)

13:40
(Invited) Strengthening in cold-reduced steel sheet via low-angle grain boundary engineering
Shigeaki Kobayashi (Ashikaga University), Takayuki Satake (Ashikaga University), Sadahiro Tsurekawa (Kumamoto University)

14:00
(Invited) A high strength-ductility Fe-Ni-Co alloy with dual-precipitation-hardening
C. C. Tasan (Massachusetts Institute of Technology), P. Pandey (ArcelorMittal Global R&D Laboratories)

14:20
Experimental characterization and micromechanical modeling of interface effects on the mechanical behavior of dual phase steels
Habibaali HABIBAALI (Lorraine university), Pipard Jean-Marc (ArcelorMittal Global R&D), Arlazarov Artem (ArcelorMittal Global R&D), Richeton Thiebaud (CNRS), Berbenni Stéphane (CNRS)

14:35
Hall-Petch Relation of Ti-6Al-2Sn-4Zr-2Mo-Si Alloy with Martensitic Duplex (α+α″) Microstructure
Hiroaki Matsumoto (Faculty of Engineering and Design, Kagawa University), Irvin Sechepee (Faculty of Engineering and Design, Kagawa University)

14:50
Characterization of α/β phase interfaces of low misfit titanium alloys and its effect on KIC
Wenguang Zhu (Xi'an University of Architecture and Technology), Conghui Zhang (Xi'an University of Architecture and Technology), Jinyu Zhang (Xi'an Jiaotong University)

15:05
Cleavage Strength of Random Grain Boundaries in BCC-Fe: An Atomic Study based on Neural Network Interatomic Potentials
Kazuki Matsubara (JFE Steel Corporation), Fan-Shun Meng (Osaka University), Shigenobu Ogata (Osaka University)

15:35 - 17: 15

S3: Mechanical behavior of high entropy alloys (3)
Chair.: Takuma Saito (Ruhr-University Bochum)

15:35
(Invited) Exploiting complex concentrated alloys to defy the strength-ductility trade-off
En Ma (Xi'an Jiaotong University)

13:55
(Invited) Excellent mechanical properties of fcc FeNiCo-based HEA alloys hardened by nano bcc precipitates
Robert Chulist (AGH University of Science and Technology), Wojciech Maziarz (Institute of Metallurgy and Materials Science), Anna Wojcik (AGH University of Science and Technology), Monika Czerny (Institute of Metallurgy and Materials Science), Arkadiusz Szewczyk (Institute of Metallurgy and Materials Science), Nikodem Poreba (Institute of Metallurgy and Materials Science), Norbert Schell (Institute of Materials Physics)

16:15
High-throughput investigation of the strengthening mechanism in low-temperature nitriding layer of Fe-35Ni-X (X=Cr, V) medium entropy alloys
Yulin Xie (Institute for Materials Research, Tohoku University), Goro Miyamoto (Institute for Materials Research, Tohoku University), Takahito Ohmura (National Institute for Materials Science), Tadashi Furuhara (Institute for Materials Research, Tohoku University)

16:30
Microstructure evolution and mechanical properties of bcc FeNiCo-based HEA alloys
Anna Wojcik (AGH University of Krakow), Wojciech Maziarz (Polish Academy of Sciences), Robert Chulist (AGH University of Science and Technology), Arkadiusz Szewczyk (Polish Academy of Sciences), Bin Li (Iowa State University), Nikodem Poreba (AGH University of Science and Technology), Norbert Schell (Helmholtz-Zentrum Hereon)

16:45
High-strength high entropy Fe–Mn–Ni–Co–Al–C alloys from an industrial steel
Dmitri LOUZGUINE (Tohoku University)

17:00
Novel corrosion-resistant Fe-based medium-entropy alloys with outstanding strength-ductility synergy
Ran Wei (Zhengzhou University)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 5 (G)

11:00 - 12:05

S5: High temperature deformation and creep (3)
Chair.: Amit Shyam (Oak Ridge National Laboratory)

11:00

(Invited) Effects of c-dislocations on creep strength in Mg-0.87Y-0.02Zn solid solution alloy around 0.5Tm

Mayumi Suzuki (Toyama Prefectural University), Koudai Yamamoto (Toyama Prefectural University)

11:20

Creep behavior of precipitation-strengthened A2-B2 Ta-Mo-Ti-Cr-Al compositionally complex alloy

Sandipan Sen (Karlsruhe Institut of Technology), Liu Yang (Karlsruhe Institut of Technology), Daniel Schliephake (Karlsruhe Institut of Technology), Vikram Raja Jothi (Karlsruhe Institut of Technology), Stephan Laube (Karlsruhe Institut of Technology), Aparajita Pramanik (Indian Institute of Science), Ankur Chauhan (Indian Institute of Science), Martin Heilmaier (Karlsruhe Institut of Technology), Alexander Kauffmann (Karlsruhe Institut of Technology)

11:35

Thermally stable Zr-induced nanoprecipitates in A2+B2 Refractory High-Entropy Alloys

VIKRAM RAJA JOTHI (KIT), SANDIPAN SEN (KIT), LIU YANG (KIT), MICHAEL EUSTERHOLZ (KIT), AMIN RADI (KIT), DANIEL SCHLIEPHAKE (KIT), ALEXANDER KAUFFMANN (KIT), MARTIN HEILMAIER (KIT)

11:50

Evaluating the High-Temperature Performance of Compositionally Complex Noble Metal Alloys Through Indentation Creep Testing

Dennis Seibert (Friedrich-Alexander-Universität Erlangen-Nürnberg), Steffen Neumeier (Friedrich-Alexander-Universität Erlangen-Nürnberg), Matthias Wegner (Heraeus Precious Metals GmbH & Co. KG)

13:40 - 15:20

S5: High temperature deformation and creep (4)
Chair.: Mayumi Suzuki (Toyama Prefectural University)

13:40

(Invited) Oxide Dispersion Strengthening via Additive Processing: A Revolutionary New Approach for High Temperature Alloys

Michael J Mills (The Ohio State University), Andreas Bezold (The Ohio State Univeraity), Milan Heczko (Czech Academy of Sciences), Subham Chattoraj (The Ohio State Univeraity), Calvin M Stewart (The Ohio State Univeraity), Timothy M Smith (NASA Glenn Research Center)

14:00

(Invited) Design of creep resistant aluminum alloys

Amit Shyam (Oak Ridge National Laboratory), Jovid Rakhmonov (Oak Ridge National Laboratory), Sumit Bahl (Oak Ridge National Laboratory), Alex Plotkowski (Oak Ridge National Laboratory), David Dunand (Northwestern University)

14:20

Creep Behavior in Stabilized Ferritic Stainless Steels at High Temperature with Long-Term Aging

Nina Puydoyeux (CIRIMAT), Dominique Poquillon (CIRIMAT), Benoit Malard (CIRIMAT), Pierre-Emmanuel Leger (APERAM)

14:35

Effect of Crystallographic Texture on the Creep Behavior of Additively Manufactured 316L Stainless Steel

Kwang-Hyeok Lim (Korea Advanced Institute of Science and Technology), Jong-Soo Bae (Korea Advanced Institute of Science and Technology), Shubham Chandra (Nanyang Technological University), Xipeng Tan (National University of Singapore), Gyumin Lee (Korea Advanced Institute of Science and Technology), Gi-Dong Sim (Korea Advanced Institute of Science and Technology)

14:50

High temperature behavior of novel 3D-printed oxide-dispersion and precipitation strengthened superalloys

Andreas Bezold (The Ohio State University), Subham Chattoraj (The Ohio State University), Calvin M. Stewart (The Ohio State University), Timothy M. Smith (NASA Glenn Research Center), Michael J. Mills (The Ohio State University)

15:05

Concurrent Imporvement of AM Processability and High Temperature Strength in γ′ Strengthened Superalloy via Tailored Chemical Modification

Tae-Gyeong Kim (Changwon National University), Chan-Hee Lee (Changwon National University), Byoung-Soo Lee (Korea Institute of Industrial Technology), Hyun-Uk Hong (Changwon National University)

Program at a Glance

Day 3: Wednesday - June 4th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 6 (H)

11:00 - 12:25

S6: Mechanical behavior associated with phase transformations (3)
Chair.: Philippe CASTANY (INSA Rennes)

11:00
(Invited) Achieving high ductility and high toughness in 2000 MPa medium Mn steel by tailoring the hierarchical substructure
Yunjie Li (Northeastern University in China), Guo Yuan (Northeastern University), Guodong Wang (Northeastern University)

11:20
(Invited) Structural properties of multi-layered Ta/Cu, Nb/Cu and Fe/Cu plates fabricated by single-shot explosive welding
Henryk Paul (Institute of Metallurgy and Materials Science of Polish Academy of Sciences), Sandra Puchlerska (AGH University of Science and Technology), Mariusz Prażmowski (Opole University of Technology), Robert Chulist (Institute of Metallurgy and Materials Science of Polish Academy of Sciences), Paweł Petrzak (Institute of Metallurgy and Materials Science of Polish Academy of Sciences)

11:40
Abnormal rate-dependent ductile-brittle transition in a Medium Mn steel
Yuxuan Liu (The University of Hong Kong), Chen Hu (The University of Hong Kong), Chengpeng Huang (The University of Hong Kong), Shuai Pan (The University of Hong Kong), Binbin He (Southern University of Science and Technology), Mingxin Huang (The University of Hong Kong)

11:55
Mitigating Lüders-band-related strain localization by designing austenite grains having bimodal stability in UFG-medium Mn steel
Wei Ding (Shanghai Jiao Tong University), Wei Li (Shanghai Jiao Tong University), Nobuhiro Tsuji (Kyoto University)

12:10
Joint investigation of strain partitioning and chemical partitioning in ferrite-containing TRIP-assisted steels
Xiaodong Tan (Southwest University), Wenjun Lu (South University of Science and Technology of China), Yunbo Xu (Northeastern University), Di Wu (Northeastern University), Dirk Ponge (Max-Planck-Institut für Eisenforschung GmbH), Dierk Raabe (Max-Planck-Institut für Eisenforschung GmbH)

13:40 - 15:15

S6: Mechanical behavior associated with phase transformations (4)
Chair.: Henryk Paul (Polish Academy of Sciences)

13:40
(Invited) Evidence of an intermediate phase during the beta to alpha" stress-induced martensitic transformation in Ti-based superelastic alloys
Philippe CASTANY (INSA Rennes), Jingjun GAO (INSA Rennes), Thierry GLORIANT (INSA Rennes)

14:00
Resonant ultrasound spectroscopy: A method for characterization of elasticity in β titanium alloys with different phase compositions
Michaela Janovska (Institute of Thermomechanics of the Czech Academy of Sciences), Jitka Nejezchlebova (Institute of Thermomechanics of the Czech Academy of Sciences), Petr Sedlak (Institute of Thermomechanics of the Czech Academy of Sciences), Jana Šmilauerova (Faculty of Mathematics and Physics of Charles University), Dalibor Preisler (Faculty of Mathematics and Physics of Charles University), Josef Stráský (Faculty of Mathematics and Physics of Charles University), Hanuš Seiner (Institute of Thermomechanics of the Czech Academy of Sciences)

14:15
Effect of prior austenite grain size on microstructure formation and reorientation of martensite variants in Ti-Ni shape memory alloys
Hisashi Matsumiya (Japan Aerospace Exploration Agency), Hyobum Lee (The University of Tokyo), Eiichi Sato (Japan Aerospace Exploration Agency)

14:30
Direct observation of dynamic transformation during hot deformation of Ti-6Al-4V alloy
BQ. Guo (Kyoto University), Y. Chong (Kyoto University), WQ. Mao (J-PARC Center, Japan Atomic Energy Agency), S. Harjo (J-PARC Center, Japan Atomic Energy Agency), W. Gong (J-PARC Center, Japan Atomic Energy Agency), N. Tsuji (Kyoto University)

14:45
Phase transformation toughening in zirconia ceramics studied using in-situ TEM observation
Bin Feng (The University of Tokyo), Hiroaki Nakade (The University of Tokyo), Eita Tochigi (The University of Tokyo), Hiromichi Ohta (Hokkaido University), Naoya Shibata (The University of Tokyo), Yuichi Ikuhara (The University of Tokyo)

15:00
Improvement of mechanical properties and thermal stability of Al-Cu-Mg-Ag alloy by warm rolling
Ling Zhang (Chongqing University), Zhe Yu (Chongqing University), He Li (Chongqing University), Xue Zhang (Chongqing University), Haotian Ju (Chongqing University)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 7 (501)

11:00 - 12:25

S7: Mechanical behavior of heterogeneous materials (3)
Chair.: Koji Hagihara (Nagoya Institute of Technology)

11:00
(Invited) Precipitation strengthening of nanostructured materials
N.R. Tao (Institute of Metal Research, Chinese Academy of Sciences), D.Y. Liu (Institute of Metal Research, Chinese Academy of Sciences)

11:20
(Invited) A low stacking fault energy dual-heterostructured Cu-Zn alloy with combinations of high strength an
Xinkun Zhu (Kunming University of Science and Technology), Cong Li (Kunming University of Science and Technology)

11:40
Heterogeneous Nano-Structure and Mechanical Properties of Groove-Rolled Cu-Zn-Si Alloy Bars
Hiromi Miura (Toyohashi University of Technology), Yojiro Oba (Toyohashi University of Technology), Yoshiteru Aoyagi (Tohoku University), Chihiro Watanabe (Kanazawa University)

11:55
Effect of microalloying and muti-field coupling melt deep purification on the microstructure and mechanical properties of Al-12Si-4.5Cu-2Ni alloy
Jufu Jiang (Harbin Institute of Technology), Jian Dong (Harbin Institute of Technology), Ying Wang (Harbin Institute of Technology)

12:10
Microstructure and mechanical properties of equal-channel angular pressed high-Mn steel at 298 K and
Young Hoon Jung (Gyeongsang National University), Beom Joon Kim (Gyeongsang National University), Marina Abramova (Ufa University of Science and Technology), Hyeonseok Kwon (Pohang University of Science and Technology), Alireza Zargaran (Pohang University of Science and Technology), Hyoung Seop Kim (Pohang University of Science and Technology), Nariman Enikeev (Ufa University of Science and Technology), Jung Gi Kim (Gyeongsang National University)

13:40 - 15:05

S7: Mechanical behavior of heterogeneous materials (4)
Chair.: Hiromi Miura (Toyohashi University of Technology)

13:40
(Invited) Exceptional mechanical properties in gradient dislocation structured alloys
Lei Lu (Institute of Metal Research, Chinese Academy of Sciences)

14:00
(Invited) Mechanics of extremely heterogeneous materials
Ting Zhu (Georgia Institute of Technology)

14:20
Hexagonal ω Phase Formation and in situ Synchrotron Deformation Analysis in Non-Equiatomic CoCrNi Alloy
Abhishek Kumar (Indian Institute of Technology Kanpur, Kanpur-208016, India), Manish Ranjan (Indian Institute of Technology Kanpur, Kanpur-208016, India), Niraj Chawake (Indian Institute of Technology Kanpur)

14:35
Mechanism of a unique softening behavior in a CrMnFeCoNi alloy at elevated temperatures
Hibiki KAWANO (Ritsumeikan university), Shuki Onoue (Ritsumeikan university), Mie Kawabata (Ritsumeikan university), Hiroshi Fujiwara (Ritsumeikan university), Kei Ameyama (Ritsumeikan university)

14:50
Role of intermetallic networks in developing high-performance austenitic steel
Chen HU (The University of Hong Kong), Yuxuan LIU (The University of Hong Kong), Binbin HE (Southern University of Science and Technology), Mingxin HUANG (The University of Hong Kong)

15:35 - 17: 15

S7: Mechanical behavior of heterogeneous materials (5)
Chair.: Lei Lu (Institute of Metal Research, Chinese Academy of Sciences)

15:35
(Invited) High strength and large elongation of Mg/LPSO extruded alloys obtained by anisotropic mechanical property-induced ductilization (AMID) mechanism
Koji Hagihara (Nagoya Institute of Technology), Tsuyoshi Mayama (Kumamoto University), Michiaki Yamasaki (Kumamoto University), Toko Tokunaga (Nagoya Institute of Technology), Soya Nishimoto (Kumamoto University)

15:55
(Invited) Various deformation modes observed during tensile and compressive deformation in LPSO-type Mg alloys with multimodal microstructures
Michiaki Yamasaki (Kumamoto University), Kosho Horiguchi (Kumamoto University), Soya Nishimoto (Kumamoto University), Koji Hagihara (Nagoya Institute of Technology), Toko Tokunaga (Nagoya Institute of Technology), Stefanus Harjo (Japan Atomic Energy Agency), Wu Gong (Japan Atomic Energy Agency)

16:15
Enhancing strength–ductility synergy in a Mg–Gd–Zn alloy at cryogenic temperatures via bimodal grain structures and LPSO phases
Chao Xu (Harbin Institute of Technology), Jing Zuo (Harbin Institute of Technology), Taiki Nakata (Nagaoka University of Technology), Pu Yan Wang (Harbin Institute of Technology), Zhen Lu (Harbin Institute of Technology), Jun Xiao Wang (Harbin Institute of Technology), Shi Xiao Hu (Harbin Institute of Technology), Wei Liu (Harbin Institute of Technology), Shigeharu Kamado (Nagaoka University of Technology), Lin Geng (Harbin Institute of Technology)

16:30
High strength and fracture-resistant Mg-Y-Zn extruded alloys with LPSO phase
Soya Nishimoto (Kumamoto Uneversity), Koji Hagihara (Nagoya Institute of Technology), Michiaki Yamasaki (Kumamoto Uneversity)

16:45
Effect of alloying on mechanical properties and deformation mechanism of fine-grained dilute Mg binary alloys
Hidetoshi Somekawa (National Institute for Materials Science), Singh Alok (National Institute for Materials Science)

17:00
Development of strong and formable Mg alloy sheet using microstructure heterogeneity
Taiki Nakata (Nagaoka University of Technology), Chao Xu (Harbin Institute of Technology), Yuto Nakae (Nagaoka University of Technology), Kosei Yagi (Nagaoka University of Technology), Ling Geng (Harbin Institute of Technology), Shigeharu Kamado (Nagaoka University of Technology)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 8 (510)

11:00 - 12:05

S8: Strength of additive-manufactured materials (3)
Chair.: Kenta Yamanaka (Tohoku University)

11:00
(Invited) The effect of heat treatment parameters on mechanical properties of additively manufactured steel 1.2709
Ludmila Kučerová (University of West Bohemia), Pavel Žlábek (Universtity of West Bohemia), Karolína Burdová (Universtity of West Bohemia)

11:20
Improving the mechanical properties of a LP-DED Maraging 18Ni300 steel via optimized heat treatments
Hugo Huttenschmitt (CIRIMAT), Jonathan Hugues (MBDA), Galliano Florian (MBDA), Dominique Poquillon (CIRIMAT), Moukrane Dehmas (CIRIMAT), Bernard Viguier (CIRIMAT)

11:35
Effect of aging temperature after solution treatment on the wear behavior of maraging 18Ni-300 Steel manufactured by laser powder bed fusion
Seungon Lim (Sunchon national university), Se-Eun Shin (Sunchon national university), Seoyoon Gong (Sunchon national university), Naoki Taktaka (Nagoya university), Makoto Kobashi (Nagoya university)

11:50
Mechanical response of remelted laser powder bed fusion (LPBF) manufactured 18Ni M300 maraging steel
RATNESH KUMAR YADAV (Indian Institute of Technology Bombay)

13:40 - 14:45

S11: Mechanistic foundations for multiscale modeling (1)
Chair.: Yifan Wang (Stanford University)

13:40
(Invited) Field Theory of Multiscale Plasticity (FTMP): A Revolutionary Framework for Advancing Multiscale Material Modeling
Tadashi Hasebe (Kobe University)

14:00
FTMP-based Creep Rupture Simulation for High Cr Ferritic Steel with Hierarchical Martensitic Microstructures
Touya Choumaru (Kobe University), Tadashi Hasebe (Kobe University)

14:15
FTMP-based Simulation of Fatigue Crack Initiation
XINPING YOU (Graduate School of Kobe University), TADASHI HASEBE (Kobe University)

14:30
Effect of oxygen contents on elastic-plastic properties of pre-oxidized titanium: experimental and simulation frameworks
Ayyoub Dziri (CNRS), Damien Texier (CNRS), Kais Ammar (CNRS), Quentin Sirvin (IMT Mines Albi - Institut Clément Ader), Julien Genée (IMT Mines Albi - Institut Clément Ader), Samuel Forest (CNRS), Henry Proudhon (CNRS), Vladislav Yasterbov (CNRS), Marc Legros (CEMES-CNRS)

15:35 - 16:25

S11: Mechanistic foundations for multiscale modeling (2)
Chair.: Tadashi Hasebe (Kobe University)

15:35
(Invited) Room-temperature vacancy emission from the jog on edge dislocation in FCC nickel under glide force
Yifan Wang (Stanford University), Wu-Rong Jian (Stanford University), Wei Cai (Stanford University)

15:55
Stochastic modeling of diffusion of dislocation under fatigue deformation
Atsushi Kubo (Japan Atomic Energy Agency), Emi Kawai (The University of Tokyo), Yoshitaka Umeno (The University of Tokyo)

16:10
Crystal Plasticity Modeling of Twinning Induced Plasticity Considering Mechanical Anisotropy on Lamellar Twin
Haruki Ohashi (Tohoku University), Yoshiteru Aoyagi (Tohoku University)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 9 (555)

11:00 - 12:30

S9: Fracture and fatigue (3)
Chair.: KAUSIK CHATTOPADHYAY (INDIAN INSTITUTE OF TECHNOLOGY (BANARAS HINDU UNIVERSITY))

11:00
Fatigue-creep behaviour of additively manufactured IN939 superalloy
Ivo Šulák (Institute of Physics of Materials, Czech Academy of Sciences), Tomáš Babinský (Institute of Physics of Materials, Czech Academy of Sciences), Markéta Gálíková (Institute of Physics of Materials, Czech Academy of Sciences), Stefan Guth (Karlsruhe Institute of Technology), Ivo Kuběna (Institute of Physics of Materials, Czech Academy of Sciences)

11:15
Unraveling the Effect of Overload on Fatigue Crack Propagation
Vikram Jayaram (Indian Institute of Science), Praveen Kumar (Indian Institute of Science), Suraj Kumar (Indian Institute of Science), Sanjeev Singh Yadav (Indian Institute of Science)

11:30
Strength of Hokkaido Dakekanba wood baseball bats
Hiroyuki Kato (Hokkaido University), Hiroshi Akitsu (Hokkaido Research Origanization)

11:45
Influence of Spatial Distribution and Polydispersity on Strain-hardening and Fracture Behaviors in Polycarbonate
Tatchaphon Leelaprachakul (The University of Tokyo), Yoshitaka Umeno (The University of Tokyo)

12:00
Temperature-dependent cyclic deformation behavior of MP35N alloy
Shubham Sisodia (IISc Bangalore), Akshat Godha (IISc Bangalore), Surendra Kumar Makineni (IISc Bangalore), Ankur Chauhan (IISc Bangalore)

12:15
Enhancement of tensile strength and fracture resistance of additive manufactured ABS using PETG polymer
Chayan Dipakkumar Kosambia (IIT Bombay)

13:40 - 15:15

S9: Fracture and fatigue (4)
Chair.: Ivo Šulák (Institute of Physics of Materials, Czech Academy of Sciences)

13:40
(Invited) Enhanced Fatigue Life of Carbide-free Nanostructured Bainitic Steel
Kausik Chattopadhyay (Indian Institute Of Technology (Banaras Hindu University)), Sandeep Kumar Gupta (Indian Institute Of Technology (Banaras Hindu University)), Rampada Manna (Indian Institute Of Technology (Banaras Hindu University))

14:00
Investigation into the low cycle fatigue behavior and microstructural evaluation of continuously cooled high-strength carbide-free bainitic steels
SUBBA REDDY PONNAPU REDDY (Indian Institute of Technology Roorkee), Dr.Sourav Das (IIT Roorkee), Dr.Surajit Kumar Paul (IIT patna)

14:15
Machine Learning Prediction of Fatigue Crack Growth Behaviour in Nickle based Super-alloys subjected to Spectrum Loading
Mahesh S. (B.M.S. College of Engineering), Anil Chandra A. R. (B.M.S. College of Engineering), Ravi Kumar L. (B.M.S. College of Engineering), Manjunatha C. M. (CSIR-National Aerospace Laboratories)

14:30
Enhanced mechanical properties of Ni61Mn25Ga14 shape memory alloy via γ phase modification
Xin Ding (Harbin Institute of Technology), Xinxiu Wang (Harbin Institute of Technology), Ruirun Chen (Harbin Institute of Technology)

14:45
Thermomechanical fatigue of Inconel 718 produced by powder bed fusion with laser beam (PBF-LB)
Stefan Guth (Karlsruhe Institute of Technology), Tomáš Babinský (Institute of Physics of Materials, Czech Academy of Sciences, Brno, Czech Republic), Steffen Antusch (Karlsruhe Institute of Technology), Lukas Englert (Karlsruhe Institute of Technology), Timothy Stubbs (Monash University), Alexander Klein (Karlsruhe Institute of Technology), Daniel Kuntz (Karlsruhe Institute of Technology), Ivo Šulák (Institute of Physics of Materials, Czech Academy of Sciences, Brno, Czech Republic)

15:00
Impact of Artificial Defects on Very High Cycle Fatigue Behavior in Additively Manufactured Materials
Boris Voloskov (Skolkovo Institute of Science and Technology), Ivan Sergeichev (Skolkovo Institute of Science and Technology)

Program at a Glance

Day 4: Thursday - June 5th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room1 (103)

11:00 - 12:20

S1: Elementary deformation mechanisms (5)
Chair.: Peng Chen (Jilin University)

11:00
(Invited) Kink bands and mechanical twinning: understanding their complementarity in MAX phases
Antoine GUITTON (Université de Lorraine), Vincent TAUPIN (CNRS), Laurent Capolungo (Los Alamos National Laboratory), Timmo Weidner (Université de Lille), Alexandre MUSSI (Université de Lille)

11:20
Dislocation-mediated non-basal plasticity in topologically close-packed phases
Zhuocheng Xie (RWTH Aachen University), Martina Freund (RWTH Aachen University), Wei Luo (RWTH Aachen University), Christina Gasper (RWTH Aachen University), Pei-Ling Sun (RWTH Aachen University), Siyuan Zhang (Max Planck Institute for Sustainable Materials), Sandra Korte-Kerzel (RWTH Aachen University)

11:35
Achieving superior strength and ductility synergy in bulk ultrafine grained Al-Mg-Sc-Zr alloy via powder pre-aging
Mingxi Li (Beihang University), Jiashuo Liu (Beihang University), Ruixiao Zheng (Beihang University), Guodong Li (Beihang University), Maowen Liu (Beihang University), Yuanyuan Lu (Beihang University), Wenlong Xiao (Beihang University), Chaoli Ma (Beihang University)

11:50
Plastic deformation of cross-linked protein crystals
Daiki Takaku (Yokohama City University), Ryo Suzuki (Yokohama City University), Kenichi Kojima (Yokohama City University), Masaru Tachibana (Yokohama City University)

12:05
Mechanical properties of gel-incorporated protein crystals
Ryo Suzuki (Yokohama City University), Daiki Takaku (Yokohama City University), Kenichi Kojima (Yokohama City University), Masaru Tachibana (Yokohama City University)

13:40 - 15:05

S1: Elementary deformation mechanisms (6)
Chair.: Antoine GUITTON (Université de Lorraine)

13:40
(Invited) Mechanical behavior of fine-grained and ultrafine-grained materials
Yanzhong Tian (Northeastern University), Shijie Sun (Institute of Metal Research, Chinese Academy of Sciences), Rui Liu (Institute of Metal Research, Chinese Academy of Sciences), Zijian Gu (Northeastern University), Siyuan Peng (Northeastern University), Zengyu Ni (Northeastern University), Song Li (Northeastern University), Gaowu Qin (Northeastern University), Zhefeng Zhang (Institute of Metal Research, Chinese Academy of Sciences)

14:00
(Invited) A model for the relationship between grain size and flow stress
Roberto Figueiredo (Universidade Federal de Minas Gerais)

14:20
Possibility of controlling work hardening rate by deformation incompatibility between grains
Yoshiki Kawano (Kitami Institute of Technology), Masatoshi Mitsuhara (Kyushu University), Tsuyoshi Mayama (Kumamoto University)

14:35
Grain fragmentation during High-Pressure Compressive Reciprocating Shearing of Pure Magnesium
Sanika Abhijit Paranjape (Indian Institute of Science, Bangalore), Prashant Huilgol (Indian Institute of Science, Bangalore), Satyam Suwas (Indian Institute of Science, Bangalore), Satish Vasu Kailas (Indian Institute of Science, Bangalore), Laszlo S. Toth (University of Miskolc, H-3515 Miskolc-Egyetemvaros, Hungary)

14:50
Evolution of Dislocation Structures and Their Crystal Orientation Dependence in Tensile-deformed High Purity Iron
Wing Sum Lau (Kyoto University), Shuhei Yoshida (Kyoto University), Nobuhiro Tsuji (Kyoto University)

15:40 - 16:50

S1: Elementary deformation mechanisms (7)
Chair.: Yanzhong Tian (Northeastern University)

15:40
(Invited) Formation and transmutation of pyramidal dislocation during twin-slip interaction in HCP metals
Peng Chen (Jilin University), Shuo Zhou (Jilin University), Bin Li (Iowa State University), Huiyuan Wang (Hebei University of Technology)

16:00
(Invited) Rate-dependent shift in dislocation dynamics in a magnesium alloy
Yizhuang Li (Northeastern University), Xinyu Xu (The University of Hong Kong), Mingxin Huang (The University of Hong Kong)

16:20
Crystal Orientation Dependence of Deformation Behavior in Pure Magnesium Single Crystals Evaluated by Ball Indentation Testing
Hiromoto Kitahara (Kumamoto University), Ryu Ohkubo (Kumamoto University), Shinji Ando (Kumamoto University)

16:35
Deformation behavior of an HCP-BCC dual-phase magnesium alloy at cryogenic temperatures
Wu Gong (Japan Atomic Energy Agency), Reza GHOLIZADEH (Kyoto University), Stefanus Harjo (Japan Atomic Energy Agency), Takuro Kawasaki (Japan Atomic Energy Agency), Kazuya Aizawa (Japan Atomic Energy Agency), Nobuhiro Tsuji (Kyoto University)

Program at a Glance

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room2 (104)

11:00 - 12:05

S2: Micro- and nano-scale mechanical testing (6)
Chair.: Denis SOLAS (Universite Paris-Saclay)

11:00
(Invited) On the damage initiation and growth in advanced high strength steels: Insights by small scale mechanical testing
Angelica Medina (Karlsruhe Institute of Technology), Subin Lee (Karlsruhe Institute of Technology), Reinhard Pippan (Austrian Academy of Science), Christoph Kirchlechner (Karlsruhe Institute of Technology)

11:20
Microshear Testing of Intermetallic-Mg Hetero-interface: Probing Local Interface Strength and Deformation In-Situ
Anwesha Kanjilal (Max Planck Institute for Sustainable Materials, Düsseldorf), James P. Best (Max Planck Institute for Sustainable Materials, Düsseldorf), Gerhard Dehm (Max Planck Institute for Sustainable Materials, Düsseldorf)

11:35
Micro-mechanical testing techniques to probe plasticity in a microstructure-graded material due to high temperature oxidation.
Malo Jullien (Institut Clément Ader), Damien Texier (Institut Clément Ader), Marc Legros (CEMES)

11:50
In situ cyclic micro deformation of a NiMnGa ferromagnetic shape-memory alloy with concurrent AE detection
Dávid Ugi (Eötvös Loránd University), Dénes Berta (Eötvös Loránd University), Kolos Lukács (Eötvös Loránd University), Eilon Faran (Israel Institute of Technology), Doron Shilo (Israel Institute of Technology), Péter Dusán Ispánovity (Eötvös Loránd University)

13:40 - 14:45

S10: Advanced characterization of deformation processes (4)
Chair.: Olivier Pierron (Georgia Institute of Technology)

13:40
(Invited) Measuring and modelling the elastoplastic transition at the microstructural scale in Ni-based engineering alloys
Joao Quinta da Fonseca (University of Manchester), Michael Atkinson (United Kingdom Atomic Energy Authority), Pratheek Shanthraj (United Kingdom Atomic Energy Authority), Dongchen Wu (University of Manchester), Samuel Engel (University of Manchester)

14:00
Study of strain localization and crystal reorientation at the early stage of plastic deformation using LSCM, HR-EBSD and DCT-6D
Damien TEXIER (CNRS), Julien GENEE (IMT Mines Albi), Henry PROUDHON (CNRS), Wolfgang LUDWIG (CNRS), Jean-Charles STINVILLE (UIUC)

14:15
Revealing the relationship between deformation patterning and solute segregation in an additively-manufactured Ni superalloy
James Ball (European Synchrotron Radiation Facility), David Collins (University of Cambridge), Yuanbo Tang (University of Birmingham), Jonathan Wright (European Synchrotron Radiation Facility), Yunhui Chen (RMIT University)

14:30
New insights on the creep of CMSX4 superalloy: Interplay between solutes and atomic structure of deformation induced faults
Akshat Godha (Indian Institute of Science bangalore), Dipak Das (Defense Metallurgical Research Laboratory, Hyderabad), Partha Ghosal (Defense Metallurgical Research Laboratory, Hyderabad), Surendra Kumar Makineni (Indian Institute of Science bangalore)

15:40 - 17:05

S10: Advanced characterization of deformation processes (5)
Chair.: Joao Quinta da Fonseca (University of Manchester)

15:40
(Invited) Grain Size Dependence of Deformation Mechanisms in Nanocrystalline and Ultrafine Grained Metallic Thin Films
Yichen Yang (Georgia Institute of Technology), Kunqing Ding (Georgia Institute of Technology), Ting Zhu (Georgia Institute of Technology), Josh Kacher (Georgia Institute of Technology), Olivier Pierron (Georgia Institute of Technology)

16:00
(Invited) Effect of Laser Shock Peening on Structure and Properties of Metallic Materials
Sergey Zherebtsov (Saint-Petersburg State Marine Technical University), Maxim Ozerov (Belgorod State University), Sergey Mironov (Belgorod State University), Oleg Plekhov (Ural Branch of Russian Academy of Sciences)

16:20
Experimental and Numerical Analysis of Deformation Heterogeneities in Upsetting and Their Impact on Microstructural and Texture Evolution in IN600
AMAN KUMAR (Indian Institute of Technology Kanpur), Shashank Shekhar (Indian Institute of Technology Kanpur), Nitish Raja (Material Science and Engineering Patna)

16:35
Microstructure, texture, and mechanical properties using a new severe plastic deformation process to produce long magnesium sheets with improved strength
NIKHIL T G (Indian Institute of Science), Sohit Mishra (Indian Institute of Science), Satish Vasu Kailas (Indian Institute of Science), Satyam Suwas (Indian Institute of Science), Laszlo S Toth (University of Miskolc)

16:50
Multi-Scale Insights into Surface Patterning of CuZn30 via Nanoimprinting
Leonie Michaela Frohnapfel (Technische Universität Darmstadt), Enrico Bruder (Technische Universität Darmstadt), Paul Braun (Technische Universität Darmstadt), Karsten Durst (Technische Universität Darmstadt)

Program at a Glance

Day 4: Thursday - June 5th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 3 (C-1)

11:00 - 12:20

S13: Effects of hydrogen (1)
Chair.: Akinobu Shibata (National Institute for Materials Science)

11:00
(Invited) Hydrogen-induced effects on plasticity in austenitic steels: contribution to hydrogen embrittlement resistance
Ivan Gutierrez (NIMS), Yuhei Ogawa (NIMS), Akinobu Shibata (NIMS)

11:20
The Role of Hydrogen in Enhancing the Mechanical Properties of 310S-Type Stainless Steel Monitored by Neutron Diffraction
Tatsuya Ito (Japan Atomic Energy Agency), Yuhei Ogawa (National Institute for Materials Science), Wu Gong (Japan Atomic Energy Agency), Takuro Kawasaki (Japan Atomic Energy Agency), Kazuho Ogata (National Institute for Materials Science), Akinobu Shibata (National Institute for Materials Science), Stefanus Harjo (Japan Atomic Energy Agency)

11:35
In-situ scanning electron microscopy observation of hydrogen embrittlement crack by hydrogen microplasma jet
Kota Tomatsu (Nippon Steel Corporation), Takahiro Aoki (Nippon Steel Corporation), Kenji Kobayashi (Nippon Steel Corporation), Tomohiko Omura (Head of Section), Akimitsu Hatta (Kochi University of Technology)

11:50
Influence of hydrogen on the deformation behaviour of titanium
Shirish Chandrakar (Indian Institute of Technology Kanpur, Kanpur, India), Poorwa Gore (AiChemy (OPC) Private Limited), Nilesh Prakash Gurao (Indian Institute of Technology Kanpur, India)

12:05
On the Hydrogen trapping tendencies of different microstructural features in a deformed pearlitic steel using 3D atom probe
Mainak Saha (National Institute for Materials Science (NIMS)), Rintaro Ueji (National Institute for Materials Science (NIMS)), Akinobu Shibata (National Institute for Materials Science (NIMS)), Taisuke Sasaki (National Institute for Materials Science (NIMS))

13:40 - 15:00

S13: Effects of hydrogen (2)
Chair.: Ivan Gutierrez (NIMS)

13:40
(Invited) 3D characterization and finite element simulation on hydrogen-related fracture in martensitic steel
Akinobu Shibata (National Institute for Materials Science), Ivan Gutierrez-Urrutia (National Institute for Materials Science), Akiko Nakamura (National Institute for Materials Science), Taku Moronaga (National Institute for Materials Science), Kazuho Okada (National Institute for Materials Science), Toru Hara (National Institute for Materials Science), Yazid Madi (MINES Paris-PSL), Jacques Besson (MINES Paris-PSL)

14:00
Pre-existing Micro-structural Effect on Hydrogen Embrittlement of Fe-based High Entropy Alloys
Dukhyun CHUNG (Chungnam National University), Seongmin CHANG (Chungnam National University), Youngsang (Korea Institute of Materials Science)

14:15
Assessing impact of hydrogen on in-situ and ex-situ mechanical characterization of 304 steel at various temperatures and pressures
Zahra Abbasi (Karlsruhe Institute for Technology (KIT)), Elvina Gaisina (Karlsruhe Institute for Technology (KIT)), Klaus Peter Weiss (Karlsruhe Institute for Technology (KIT))

14:30
'Fisheye' formation in H-charged low alloy cast steel containing porosity
Szilvia Kalacska (CNRS, Mines St. Etienne), Andras Borbely (Mines St. Etienne), James Ball (ESRF), Jonathan W. Wright (ESRF), Frederic Christien (Mines St. Etienne)

14:45
Effect of hydrogen on grain growth in UFG iron by cyclic high-pressure torsion
Marlene W. Kapp (Austrian Academy of Sciences), Michael Zawodzki (Austrian Academy of Sciences), Gregor Mori (University of Leoben), Dino Zwittnig (University of Leoben), Masoud Moshtaghi (Lappeenranta University of Technology), Jürgen Eckert (Austrian Academy of Sciences), Reinhard Pippan (Austrian Academy of Sciences), Oliver Renk (University of Leoben)

Program at a Glance

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 4 (C-2)

11:00 - 12:20

S3: Mechanical behavior of high entropy alloys (4)
Chair.: Zhangwei Wang (Central South University)

11:00
(Invited) Microstructure and Texture Formation during Tensile Deformation of Polycrystalline CrMnFeCoNi High-Entropy Alloy
Werner Skrotzki (Technische Universität Dresden), Robert Chulist (AGH University of Science and Technology), Christian Gadelmeier (University Bayreuth), Uwe Glatzel (University Bayreuth), Laslo S. Toth (Université de Lorraine), Easo P. George (University of Tennessee), Dan Sathiaraj (Indian Institute of Technology)

11:20
Design of High Entropy Alloys with Suppressed Elemental Segregation for Laser Powder Bed Fusion Process
Ozkan Gokcekaya (Osaka University), Yong Seong Kim (Osaka University), Takayoshi Nakano (Osaka University)

11:35
Role of sigma phase and transformation induced plasticity on the fracture and deformation behavior of Fe43Mn27Co10Cr15Si5 high entropy alloy
Manoj Kumar Yadav (Indian Institute of Technology Kanpur), Niraj Nayan (Vikram Sarabhai Space Centre), Nilesh Prakash Gurao (Indian Institute of Technology Kanpur), Krishanu Biswas (Indian Institute of Technology Kanpur)

11:50
Tailoring the mechanical properties of high entropy alloys via controlling the multi-scaled heterogeneous microstructures
Shaojie Wu (Zhengzhou University), Ran Wei (Zhengzhou University), Chen Chen (Zhengzhou University), Tan Wang (Zhengzhou University), Yongfu Cai (Zhengzhou University), Fushan Li (Zhengzhou University)

12:05
Achieving ultrahigh strength and ductility in Fe60Cr15Ni16Al9 medium entropy alloy via coupling hierarchically heterogeneous microstructure
Tan Wang (Zhengzhou University), Yuanqing Zhang (Zhengzhou University), Chengfu Han (Zhengzhou University), Yongfu Cai (Zhengzhou University), Chen Chen (Zhengzhou University), Shaojie Wu (Zhengzhou University), Ran Wei (Zhengzhou University)

13:40 - 15:15

S3: Mechanical behavior of high entropy alloys (5)
Chair.: Werner Skrotzki (Technische Universität Dresden)

13:40
(Invited) Phase Equilibrium, Microstructure and Mechanical Properties of IrPtRhRuW-based Concentrated Solid Solution Alloys
Seiji Miura (Hokkaido University), Shiho Takebe (Hokkaido University), Ken-ichi Ikeda (Hokkaido University), Syuki Yamanaka (Hokkaido University), Kunihiro Shima (TANAKA PRECIOUS METAL TECHNOLOGIES CO., LTD.), Tatsuya Yanagidate (TANAKA PRECIOUS METAL TECHNOLOGIES CO., LTD.)

14:00
Research on the microstructure and properties of precious metal multi-principal elements alloys
Yong Mao (Yunnan University)

14:15
Deformation Behavior, Microstructure, and Mechanical Property of Cold-Rolled and Annealed $AlCoCrFeNi_{2.1}$ High-Entropy Alloy with Dual-Phase Structure
Reza Gholizadeh (Kyoto University), Koji Inoue (Tohoku University), Shuhei Yoshida (Kyoto University), Sheng Guo (Chalmers University), Nobuhiro Tsuji (Kyoto University)

14:30
Influence of Iron Addition on Fracture Mechanism and Toughness in the AlCoCrFeNi2.1 Eutectic High Entropy Alloy
Cal David Siemens (McMaster University), David S. Wilkinson (McMaster University), Jidong Kang (Natural Resources Canada)

14:45
Microstructure Design and Deformation Behavior of AlFeCrCoNi based Hypo-Eutectic, Eutectic and Hyper-Eutectic alloys
Pradipta Ghosh (IIT Gandhinagar), Sagar Kumar Deb (IIT Gandhinagar), Vivek Kumar Singh (IIT Gandhinagar)

15:00
Design of dual-phase high-entropy alloys with optimized strength-ductility balance: Microstructure and mechanical properties
Apurba Mahato (Indian Institute of Technology (IIT) Roorkee), Govind Bajargan (Vikram Sarabhai Space Centre, Trivandrum), Suhrit Mula (Indian Institute of Technology (IIT) Roorkee)

15:40 - 16:45

S3: Mechanical behavior of high entropy alloys (6)
Chair.: Seiji Miura (Hokkaido University)

15:40
(Invited) Dual-nanoprecipitation in strong and ductile compositionally complex steels
Zhangwei Wang (Central South University)

16:00
Investigating strengthening behavior in carbide-enriched novel hypo-eutectic high entropy alloy (CoFeNi)-V-C
Hamshini R (Kyoto University), Reza Gholizadeh (Kyoto University), Shuhei Yoshida (Kyoto University), Nobuhiro Tsuji (Kyoto University)

16:15
Composite alloying effects of Ni and C on the microstructures and properties of AlNbTiVCr lightweight high entropy alloys
Dezhi Chen (Harbin Institute of Technology), Jiaqi Zhu (Harbin Institute of Technology), Fangdong Xu (Harbin Institute of Technology), Chao Xu (Harbin Institute of Technology), Jingyue Yu (Harbin Institute of Technology), Ruirun Chen (Harbin Institute of Technology)

16:30
Mechanical properties of Cu-Zn-Mn-Ni-Sn high entropy brasses and Cu-Zn-Mn-Ni medium entropy brasses
Takeshi Nagase (University of Hyogo), Akihiro Shibata (Osaka Research Institute of Science and technology), Mitsuaki Matsumuro (Osaka Research Institute of Science and technology), Mamoru Takemura (Osaka Research Institute of Science and technology), Satoshi Semboshi (Shimane University)

Program at a Glance

Day 4: Thursday - June 5th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 5 (G)

11:00 - 12:20

S5: High temperature deformation and creep (5)
Chair.: Hidehiro Yoshida (The University of Tokyo)

11:00
(Invited) Characterization of mesoscopic deformation behavior in an austenitic stainless steel using Gleeble-DIC
Seung-Yong Lee (Korea Institute of Materials Science), Yongnam Kim (Korea Institute of Materials Science), Junbeom Kwon (Korea Institute of Materials Science)

11:20
Knitting Reactions in Structural High Temperature Materials
Gunther Eggeler (Ruhr-University Bochum)

11:35
High Temperature Creep Deformation of non-equiatomic CoCrNi alloy with Hierarchical Microstructure
Abhishek Kumar (Indian Institute of Technology Kanpur), Niraj Chawake (Indian Institute of Technology Kanpur)

11:50
Microstructure and Elevated Temperature Mechanical Properties of Ni2Al1.8CrCuFe High Entropy Alloy
Kosuke Katayama (Ritsumeikan University), Taiki Yamamoto (Ritsumeikan University), Mie Kawabata (Ritsumeikan University), Kei Ameyama (Ritsumeikan University), Tomoko Kuno (Ritsumeikan University), Lei He (Ritsumeikan University), Takamoto Itoh (Ritsumeikan University), Hiroshi Fujiwara (Ritsumeikan University)

12:05
High temperature deformation and creep behavior Ni-based complex concentrated Alloys
Swati Kumari (Indian Institute of Technology, Kanpur), Manish Ranjan (Indian Institute of Technology, Kanpur), Niraj Chawake (Indian Institute of Technology, Kanpur)

13:40 - 15:15

S5: High temperature deformation and creep (6)
Chair.: Seung-Yong Lee (Korea Institute of Materials Science)

13:40
(Invited) Improvement of High-temperature Plastic Deformability in Zirconia Ceramics under a Strong Electric Field and Current
Hidehiro Yoshida (The University of Tokyo), Kamarul Aiman Bin Shariffuddin (The University of Tokyo), Hiroki Motomura (The University of Tokyo), Kohta Nambu (Kyushu University), Hiroshi Masuda (The University of Tokyo), Koji Morita (National Institute for Material Science), Takahisa Yamamoto (Nagoya University)

14:00
Creep and Stress Relaxation in Thin Films: Experiments, Modelling, and Materials Science-Based Insights for Reliability Improvement
Darshan C (Indian Institute of Science Bangalore), Praveen Kumar (Indian Institute of Science Bangalore)

14:15
The Accuracy of Physical Simulations of Industrial Steelmaking Processes
Wayne Chen (Dynamic Systems Inc.)

14:30
A Microscale Model for Predicting Coble Creep Deformation and Void Nucleation/Growth in 3D Polycrystalline Solids
Kota Sagara (The University of Tokyo), Yi Liu (The University of Tokyo), Kazuki Shibanuma (The University of Tokyo)

14:45
Inverse method for determining high temperature properties of materials using small punch creep
Anjali Gawande (Indian Institute of Science), Praveen Kumar (Indian Institute of Science)

15:00
Strengthening effects of Mo in Cr-based high temperature alloys
Lisa Zander (DECEHMA-Forschungsinstitut), Michael Kerbstadt (DECEHMA-Forschungsinstitut), Emma M. H. White (DECEHMA-Forschungsinstitut), Mathias C. Galetz (DECEHMA-Forschungsinstitut)

15:40 - 17:00

S4: Effects of grain boundaries and interfaces (5)
Chair.: Prafull Pandey (Indian Institute of Technology Gandhinagar)

15:40
(Invited) Collapse Model of Twist Grain Boundary for Aluminum and Silicon
Shigeto Robert Nishitani (Kwansei Gakuin Univ.), Tomoyuki Tamura (Nagoya Inst. Tech.), Ryo Kobayashi (Nagoya Inst. Tech.)

16:00
Tribological response of Σ3{111} coherent twin boundary at a small scale in FCC metal
Wenzhen Xia (Anhui University of Technology)

16:15
Combining quasi in-situ nanoindentation and electron channeling imaging to understand dislocation – twin boundary interactions in MgY.
Fatim Zahra Mouhib (Universite de Lorraine), Antoine Guitton (Universite de Lorraine), Julien Guénolé (Universite de Lorraine), Stephane Berbenni (Universite de Lorraine), Hexin Wang (RWTH Aachen University), Zhuocheng Xie (RWTH Aachen University), Talal Al Samman (RWTH Aachen University), Thiebaud Richeton (Universite de Lorraine)

16:30
Deformation and fracture at basal twist grain boundaries in titanium alloys
Thomas Yvinec (Institut Pprime), Valery Valle (Institut Pprime), Florence Hamon (Institut Pprime), Djafar Iabadden (LEM3), Julien Guénolé (LEM3), Samuel Hemery (Institut Pprime)

16:45
The plastic deformation of heterogeneously nucleated grain boundary phase
Seung Zeon Han (Korea Institute of Materials Science), Eun-Ae Choi (Korea Institute of Materials Science)

Program at a Glance

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 6 (H)

11:00 - 12:20

S6: Mechanical behavior associated with phase transformations (5)
Chair.: Qinglong Zhao (Jilin University)

11:00
(Invited) Effect of initial microstructure on austenite reversion kinetics and elemental partitioning during inter-critical annealing of medium Mn steel
Prita Pant (Indian Institute of Technology Bombay), Subhas Bhunia (Indian Institute of Technology Bombay), Poornachandra Satyampet (Indian Institute of Technology Bombay), M P Gururajan (Indian Institute of Technology Bombay), Shubo Wang (University of Oulu), Harishchandra Singh (University of Oulu), Al Rahemtulla (Canadian Light Source)

11:20
Cyclic transformation strengthening in Fe-24Ni-0.3C metastable austenitic steels with different grain sizes
Mayu Dono (Kyoto university), Si Gao (Kyoto university), Myeong-heom Park (Kyoto university), Nobuhiro Tsuji (Kyoto university)

11:35
Effect of Electropulsing on Strengthening and Ductilization of Low-Density Duplex Steel
R Manna (Indian Institute of Technology(BHU) Varanasi)

11:50
The Effect of Austenitization Temperature on Microstructure and Tensile Properties of Quenching-and-Partitioning-Processed Stainless Steels
Bugra Sahin (Yeungnam University), Jee-Hyun Kang (Yeungnam University)

12:05
Deformation and Microstructural Evolution in Advanced High Strength Steel (AHSS)
Ratnakar Singh (Indian Institute of Technology Bombay), Subhas Bhunia (Indian Institute of Technology Bombay), Prita Pant (Indian Institute of Technology Bombay)

13:40 - 14:45

S6: Mechanical behavior associated with phase transformations (6)
Chair.: Prita Pant (Indian Institute of Technology Bombay)

13:40
(Invited) Fatigue of metastable austenitic steels
Marek Smaga (RPTU Kaiserslautern-Landau, Germany)

14:00
The effect of thermo-mechanical processing on the mechanical properties of medium Mn steel
Dhanendra Kumar Sahu (IIT Bombay), Nitesh Kumar Gouda (IIT Bombay), Sanjay Chandra (IIT Bombay), Prasad M.J.N.V. (IIT Bombay)

14:15
Role of lamellarized microstructure on cryogenic toughness for quenched and tempered 9%Ni steel
Rikiya MADAMBASHI (Yokohama National University), Osamu UMEZAWA (Yokohama National University), Yoshinori ONO (National Institute for Materials Science), Masayuki KOMATSU (National Institute for Materials Science)

14:30
Prediction of phase fractions in multi-phase Q&P steels using bainite transformation stasis model
Seong-Hoon Kim (Korea Institute of Materials Science), Kyeong-Won Kim (Korea Institute of Materials Science), Ki-Hwan Kwon (Korea Institute of Materials Science), Hyo-Haeng Jo (Korea Institute of Materials Science), Dong-Woo Suh (POSTECH)

15:40 - 16:30

S6: Mechanical behavior associated with phase transformations (7)
Chair.: Noriyuki Tsuchida (University of Hyogo)

15:40
(Invited) Enhanced strength-ductility in a cast α-Ti alloy via inoculation
Qinglong Zhao (Jilin University), Wei Jin (Jilin University), Xinpeng Fang (Jilin University)

16:00
Microstructure observation of Cu added excess Si-type Al-Mg-Si alloys
S. Lee (University of Toyama), S. Asai (University of Toyama), T. Tsuchiya (University of Toyama), K. Matsuda (University of Toyama)

16:15
Accelerating Precipitation Hardening by Nature Aging in Al-Mg-Si alloys
Chunan Li (KTH Royal Institute of Technology), Calin Daniel Marioara (SINTEF Industry), Constantinos Athanasios Hatzoglou (Norwegian University of Science and Technology (NTNU)), Sigmund Jarle Andersen (SINTEF Industry), Randi Holmestad (Norwegian University of Science and Technology (NTNU)), Yanjun Li (Norwegian University of Science and Technology (NTNU))

Program at a Glance

Day 4: Thursday - June 5th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 7 (501)

11:00 - 12:35

S7: Mechanical behavior of heterogeneous materials (6)
Chair.: Michiaki Yamasaki (Kumamoto University)

11:00
(Invited) On how the smart architecture of harmonic-structure outperforms rule of mixtures in bimodal-structure materials
Dmytro Orlov (Lund University)

11:20
Influence of hot rolling on microstructure and strain localisation of cBN-B4C/Al composites
Min-Su Lee (Korea Institute of Industrial Technology), Chan-Wool Ahn (Korea Institute of Industrial Technology), Donghyun Lee (Korea Institute of Materials Science), Junghwan Kim (Korea Institute of Materials Science), Seungchan Cho (Korea Institute of Materials Science), Chang-Soo Park (Korea Institute of Industrial Technology)

11:35
Harmonic Structure design of a SUS316L using a bi-modal (BiM) process
Seitaro Suzuki (Ritsumeikan University), Koki Yagi (Ritsumeikan University), Bhupendra Sharma (Ritsumeikan University), Mie Kawabata (Ritsumeikan University), Hiroshi Fujiwara (Ritsumeikan University), Kei Ameyama (Ritsumeikan University)

11:50
Mesoscale modeling of dislocation interaction with nanoprecipitates
Kyeongmi Yeon (Seoul National University), Gyujang Sim (Seoul National University), Ill Ryu (Seoul National University)

12:05
Crystal Plasticity Simulation Based on Predicted Dislocation Density Distribution for Mechanical Anisotropy in Heavily Cold-Rolled Metals
Nomun Gerel-Erdene (Tohoku University), Kenshin Hayashi (Tohoku University), Haruki Ohashi (Tohoku University), Chihiro Watanabe (Kanazawa University), Hiromi Miura (Toyohashi University of Technology), Yoshiteru Aoyagi (Tohoku University)

12:20
Formability of AA1050-AA7050 aluminum multi layer microstructures produced by accumulative roll bonding: necking and fracture limits
Andrea Madeira Kliauga (Federal University of Sao Carlos), Danielle C. Camilo Magalhães (Federal University of São Carlos), Muniky C. Souza (Federal University of São Carlos), Luciana Montanari (University of São Paulo), Sergio Henrique Evangelista (Federal University of Sao Carlos), Jose Benaque Rubert (Federal University of Sao Carlos), Sergio. A. Elizalde Huitron (Universitat Politècnica de Catalunya), Jose Maria Cabrera Marrero (Universitat Politècnica de Catalunya)

13:40 - 15:30

S14: Materials under extreme conditions (1)
Chair.: WEIZHONG HAN (XI`AN JIAOTONG UNIVERSITY)

13:40
(Invited) What Happens to Material Strength at High Strain Rates and Pressures: An Experimental Study
Saryu Fensin (Los Alamos National Lab), Michael Prime (Los Alamos National Lab), David Jones (Los Alamos National Lab), Daniel Martinez (Los Alamos National Lab)

14:00
Ballistic performance of Al-Al3Ti-Ti metal intermetallic laminates
Mohan Kumar N (Indian Institute of Science), Karthikeyan S (Indian Institute of Science), Bobji M S (Indian Institute of Science)

14:15
A high-throughput approach to understand twinning and transformation induced plasticity in the dynamic strain rate regime
Amit Kumar Yadav (Indian Institute of Technology Kanpur), Venkitanarayanan Parameswaran (Indian institute of Technology Kanpur), Nilesh Prakash Gurao (Indian Institute of Technology Kanpur)

14:30
High-velocity impact of copper and brass sphere against tool steel block
Sazid Khan (Indian Institute of Science), Karthikeyan S. (Indian Institute of Science)

14:45
Control of grain boundary property in novel high-strength high-toughness hypereutectoid steel
Toko Tokunaga (Nagoya Institute of Technology), Hayato Nakakita (Nagoya Institute of Technology), Naoya Harada (Nagoya Institute of Technology), Yuma Sato (Nagoya Institute of Technology), Koji Yamamoto (Komatsu Ltd.), Toshiyuki Sugimoto (Sanyo Special Steel Co., Ltd.), Yoritoshi Minamino (Osaka University), Koji Hagihara (Nagoya Institute of Technology)

15:00
Effect of new deformation modes on the structure and properties of TiNi shape memory alloys
Roman Karelin (Baikov Institute of Metallurgy and Materials Science RAS), Victor Komarov (NUST MISIS), Irina Khmelevskaya (NUST MISIS), Vladimir Cherkasov (NUST MISIS), Vladimir Andreev (IMET RAS), Vladimir Yusupov (IMET RAS), Sergey Prokoshkin (NUST MISIS)

15:15
Investigating the dynamic failure and fragmentation behavior of additively manufactured Ti-6Al-4V with a novel ring expansion methodology.
Edward Leggett (University of Oxford), David J Chapman (University of Oxford), Daniel E Eakins (University of Oxford)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 8 (510)

11:00 - 12:35

S8: Strength of additive-manufactured materials (4)
Chair.: Yoji Miyajima (Kanazawa University)

11:00
(Invited) Microstructural Engineering and Strength of Laser Powder Bed Fusion Printed Metallic Samples.
DORTE JUUL JENSEN (DTU)

11:20
Mechanical properties of a hypereutectic Al-20%Si alloy produced by laser powder bed fusion
Asuka Suzuki (Nagoya University), Yusuke Sasa (Nagoya University), Koya Matsui (Nagoya University), Naoki Takata (Nagoya University), Makoto Kobashi (Nagoya University), Masaki Kato (Aichi Center for Industry and Science Technology), Junji Umeda (Aichi Center for Industry and Science Technology)

11:35
Effect of Post-process Heat Treatment on Tensile and Fatigue Behavior of Wire Arc Additively Manufactured Al-6Mg-0.3Sc Alloy
Jidong Kang (CanmetMATERIALS), Jie Liang (CanmetMATERIALS), Andrew Laver (CanmetMATERIALS), Babak Shalchi Amirkhiz (CanmetMATERIALS), Nafiseh Zaker (CanmetMATERIALS)

11:50
Interpretive Machine Learning on Additively Manufactured High-Strength Al Alloys
Mingliang Wang (Shanghai Jiao Tong University), Hongyi Zhu (Shanghai Jiao Tong University), Yang Li (Shanghai Jiao Tong University), Zhe Chen (Shanghai Jiao Tong University)

12:05
Wear properties of aluminum alloys fabricated by laser powder bed fusion
Seoyoon Gong (Sunchon National University), Seungon Lim (Sunchon National University), Naoki Takata (Nagoya University), Makoto Kobashi (Nagoya University), Se-Eun Shin (Sunchon National University)

12:20
Mechanical Properties of Aluminium Alloys Manufactured by Direct Liquid Metal Deposition
William Le Bas (EPFL), Julie Gheysen (EPFL), Andreas Mortensen (EPFL)

13:40 - 15:00

S8: Strength of additive-manufactured materials (5)
Chair.: DORTE JUUL JENSEN (Technical University of Denmark)

13:40
(Invited) Microscopic nature of mechanical anisotropy of aluminum alloys manufactured by laser powder bed fusion
Naoki Takata (Nagoya University), Yuki Otani (Nagoya University), Yue Cheng (Nagoya University), Asuka Suzuki (Nagoya University), Makoto Kobashi (Nagoya University), Masaki Kato (Aichi Center for Industry and Science Technology)

14:00
Anisotropic Mechanical Properties of CuCrZr Alloy Manufactured via Laser Powder Bed Fusion Process
Dasom KIM (Nagoya University), Naoki TAKATA (Nagoya University), Junji UMEDA (Aichi Center for Industry and Science Technology), Toshihiko SHIMIZU (TKE Co., Ltd), Makoto KOBASHI (Nagoya University)

14:15
Effect of Hot Deformation on Microstructure and Porosity of Additively Manufactured 7050 Al Alloy
Heng Su (Harbin Institute of Technology), Bin Shao (Harbin Institute of Technology), Yingying Zong (Harbin Institute of Technology), Debin Shan (Harbin Institute of Technology)

14:30
Strain rate jump test and in-situ XRD on L-PBF AlSi10Mg
Yoji Miyajima (Kanazawa University), Yuta Nakamura (Kanazawa University), Kazuhiro Ishikawa (Kanazawa University), Hiroki Adach (Uniersity of Hyogo), Naoki Takata (Nagoya University)

14:45
Precipitate Shearing Induced Deformation Mechanisms During Tensile Loading of Additive Manufactured Nickel-Aluminum-Bronze
Aeriel Leonard (The Ohio State University), Veronika Mazánová (Czech Academy of Sciences), Milan Heczko (Czech Academy of Sciences), Jiashi Miao (The Ohio State University)

15:40 - 16:40

S8: Strength of additive-manufactured materials (6)
Chair.: Naoki Takata (Nagoya University)

15:40
Tailorable Mechanical Performance of Additively Manufactured Ti-6Al-4V via Cyclic Heat Treatments
Sahil Dhiman (Deakin University, Australia), Sahil Dhiman (Deakin University Australia & IIT Hyderabad India), Milan Brandt (RMIT University, Australia), Daniel Fabijanic (Deakin University, Australia), Viswanath Chinthapenta (Indian Institute of Technology Hyderabad, India), Wei Xu (Deakin University, Australia)

15:55
Tailoring the Microstructure and Properties of Directed Energy Deposited Ti6242 alloy
Sita Choudhary (Indian Institute of Science), Debtanay Das (Indian Institute of Science, Bangalore), Prasanth Soundappan (Indian Institute of Science, Bangalore), Satyam Suwas (Indian Institute of Science, Bangalore)

16:10
Effect of heat treatment on the microstructure and mechanical properties of carbon-supersaturated β-Ti alloys fabricated by laser powder bed fusion
Mingqi Dong (Tohoku University), Weiwei Zhou (Tohoku University), Naoyuki Nomura (Tohoku University)

16:25
Additive Manufacturing of TiB2/Ti6Al4V Composites with Ultrahigh Strength
He Li (Tianmushan Laboratory, Beihang University), Ruixiao Zheng (Beihang University), Maowen Liu (Beihang University), Chaoli Ma (Beihang University)

Program at a Glance

Day 4: Thursday - June 5th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 9 (555)

11:00 - 12:20

S9: Fracture and fatigue (5)
Chair.: Dipankar Banerjee (Indian Institute of Science)

11:00
(Invited) Lattice Rotation near Fracture Surfaces of Fatigued Fe-Cr Alloy Single Crystals
Yoshihisa Kaneko (Osaka Metropolitan University), Takeru Morigami (Osaka Metropolitan University), Makoto Uchida (Osaka Metropolitan University)

11:20
Development of dislocation structures during low cycle fatigue in a polycrystalline SUS316L alloy
Tomotaka Miyazawa (Otemon Gakuin University), Yuyang Bai (Tokyo Institute of Technology), Sho Sha (Tokyo Institute of Technology), Toshiyuki Fujii (Institute of Science Tokyo)

11:35
Room Temperature Dwell Fatigue and Creep in Ti6242
Raineesh Babu K P (Indian Institute of Science), Dheepa Srinivasan (Ramaiah University of Applied Sciences), Praveen Kumar (Indian Institute of Science)

11:50
Unraveling Invariant Fatigue Limit in Heterostructured Al0.3CoCrFeNi High-Entropy Alloys: The Role of Microstructural Weakest Regions
Zhe Zhang (University of Science and Technology Beijing), Xiaodi Wang (University of Science and Technology Beijing), Xuechong Ren (University of Science and Technology Beijing)

12:05
Uncoupled Damage Modeling in Flow Forming Processes: An Assessment of Failure Mechanisms
T. Yalçinkaya (Middle East Technical University), H. Vural (Middle East Technical University), T.O Fenercioglu (Repkon Machine and Tool Industry and Trade Inc.)

13:40 - 15:00

S9: Fracture and fatigue (6)
Chair.: Yoshihisa Kaneko (Osaka Metropolitan University)

13:40
(Invited) Dwell Fatigue and its Thermal alleviation in MTR free Ti alloy, Ti6242
Dipankar Banerjee (Indian Institute of Science), Tirthesh Ingale (Ndian Institute of Science), Subham Chattoraj (Ndian Institute of Science), Girish Bojjawar (Indian Institute of Science), Vasisht Venkatesh (Pratt and Whitney), Satyam Suwas (Indian Institute of Science)

14:00
Effect of 3D microstructure on dwell fatigue properties of IMI834 using crystal plasticity simulations
TEJANATH REDDY SUREDDY (IISc Banglore), Satyam Suwas (IISc Banglore)

14:15
Effect of Macrozone-Notch Interaction on High Cycle Fatigue in Bimodal Ti-64
Zachary Thomas Kloenne (Imperial College London), Yan Gao (Imperial College London), Langdon Oscar (Imperial College London), Nigel Martin (Rolls Royce, UK), David Dye (Imperial College London)

14:30
Effects of stress ratio on fatigue crack initiation for Ti-5Al-2.5Sn ELI alloy at cryogenic temperature
Shotaro ASAHI (Yokohama National University), Osamu UMEZAWA (Yokohama National University), Yoshinori ONO (National Institute for Materials Science), Takashi UCHINO (National Institute for Materials Science)

14:45
Mechanistic Insights into Cold Dwell Fatigue of Ti-6Al-4V: The Role of Creep and Macrozones
Anaïs HUET (Pprime Institue), Samuel HÉMERY (Pprime Institue), Patrick VILLECHAISE (Pprime Institue)

15:40 - 17:15

S15: Strength of biomedical and bio-inspired materials
Chair.: Roberto Figueiredo (Universidade Federal de Minas Gerais)

15:40
(Invited) Effect of Oxygen Addition on Mechanical Properties and Phase Stability of Ti-Mo alloys
Sengo Kobayashi (Ehime University), Shoma Shibata (Ehime University), Satoshi Okano (Ehime University)

16:00
Transformations induced Strengthening in Zn-Li alloys designed for bioresorbable implant applications
Zhendong Zhong (PSL University, Chimie ParisTech, CNRS), Justine Ravaut (Laboratoire de Réactivité de Surface), Hongtao Yang (School of Engineering Medicine), Yufeng Zheng (School of Materials Science and Engineering), Kevin Ogle (PSL University, Chimie ParisTech, CNRS), Fan Sun (PSL University, Chimie ParisTech, CNRS)

16:15
Strengthening Strategies for TWIP/TRIP BCC Ti and Zr Alloys via Secondary Phase Engineering
Fan Sun (Chimie-Paristech, PSL university), Bingnan Qian (Chimie-Paristech, PSL university), Junhui Tang (Chimie-Paristech, PSL university), Philippe Vermaut (Chimie-Paristech, PSL university), Raj Banejee (University of North Texas), Frédéric Prima (Chimie-Paristech, PSL university)

16:30
Stability enhancement of biomedical β-Ti alloys by minor additions of neutral Sn
Florian Brumbauer (Graz University of Technology), Norihiko L. Okamoto (Tohoku University), Philipp Materna (Graz University of Technology), Heinz Amenitsch (Graz University of Technology), Tetsu Ichitsubo (Tohoku University), Wolfgang Sprengel (Graz University of Technology), Martin Luckabauer (University of Twente)

16:45
Strengthening of Mg-2Zn-0.5Ca-xSr by multiscale precipitates and co-segregation of solution elements
LILI CHANG (Shandong University), Junlong Qin (Shandong University), Xiaokang Chang (Shandong University)

17:00
Novel biocompatible Mg-Li-Y alloys prepared by hot extrusion and ECAP
Jan Dittrich (Charles University), Jiří Kubásek (University of Chemistry and Technology), Jan Bohlen (Helmholtz-Zentrum Hereon), Michal Knapek (Charles University), Jozef Veselý (Charles University), Milan Dopita (Charles University), Peter Minárik (Charles University)

Program at a Glance

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room1 (103)

11:00 - 12:05

S1: Elementary deformation mechanisms (8)
Chair.: Couzinie Jean-Philippe (CNRS)

11:00
(Invited) Dislocation Core Structure from Diffuse Scattering Below the Bragg Peaks
Tamas Ungar (University of Miskolc, Miskolc, Hungary), Gábor Ribárik (Eötvös University Budapest)

11:20
A new rolling model with application on cross and direct rolling of low carbon steel
Laszlo S Toth (Université de Lorraine and University of Miskolc), Jawhara Marouani (University of Miskolc), Máté Szűcs (University of Miskolc)

11:35
Characterization of precipitation strengthening in Al-3.9Cu-1.5Mg alloy using high energy laboratory small angle X-ray scattering
Shin Fukuda (Hokkaido University), Masato Ohnuma (Hokkaido University), Goroh Itoh (Ibaraki University), Shigeru Kuramoto (Ibaraki University), Junya Kobayashi (Ibaraki University), Equo Kobayashi (Institute of Science Tokyo)

11:50
Effect of C and Mn addition for bending deformation of quenched shafts
Yuta Kimura (NIPPON STEEL CORPORATION), Takahide Umehara (NIPPON STEEL CORPORATION), Takahisa Suzuki (NIPPON STEEL CORPORATION), Yutaka Neishi (NIPPON STEEL CORPORATION), Kazuo Okamura (OSAKA UNIVERSITY)

13:40 - 15:00

S1: Elementary deformation mechanisms (9)
Chair.: Tamas Ungar (University of Miskolc)

13:40
(Invited) Deformation mechanisms of the B2 intermetallic phase in Ru-X binary systems (X=Ti,Zr,Hf)
Couzinie Jean-Philippe (CNRS), Poulain Regis (CNRS), Perriere Loic (CNRS), Crossman Bryan (OSU), Ghazisaeidi Maryam (OSU), Mills Michael (OSU)

14:00
Revisiting the role of chemical order on mechanical properties of Ni-Cr alloy
Shuhei Yoshida (Kyoto University), Daiki Tokiwa (Kyoto University), Hikaru Saito (Kyushu University), Yoji Miyajima (Kanazawa University), Mitsuhiro Murayama (Kyushu University), Nobuhiro Tsuji (Kyoto University)

14:15
Study of back stress evolution in IN718 as a function of prestrain
Mohit Murlidhar Ludhwani (Indian Institute of Technology Madras), Rintaro Ueji (National Institute of Material Science), Anand K Kanjarla (Indian Institute of Technology Madras)

14:30
Interface Properties of the Graphene Oxide/Polymer Nanocomposites in Humid Environments
Hanqing Wei (Zhejiang University), Haifei Zhan (Zhejiang University)

14:45
Microstructural and texture investigation on shock wave assisted deformation of titanium
Shreshtha Ranjan (IISc Bangalore), Gopalan Jagadeesh (IISc Bangalore), Satyam Suwas (IISc Bangalore)

Program at a Glance

Day 5: Friday - June 6th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room2 (104)

11:00 - 12:20

S10: Advanced characterization of deformation processes (6)
Chair.: Yoshikazu Todaka (Toyohashi University of Technology)

11:00
(Invited) Concurrent characterization of Lüders and PLC bands by low-strain-rate tensile testing in steel
Eibun Kyo (Institute of Science Tokyo), Seung-Yong Lee (Korea Institute of Materials Science), Ryota Nagashima (Institute of Science Tokyo), Nobuo Nakada (Institute of Science Tokyo), Fusae Shiimori (JFE Steel Corporation), Nobusuke Kariya (JFE Steel Corporation), Shinjiro Kaneko (JFE Steel Corporation)

11:20
Intrinsic mechanism of post-dynamic phase transformation from austenite to ferrite in-situ neutron diffraction
Zelin Tong (Shanghai Jiaotong University), Wei Li (Shanghai Jiaotong University), Wei Ding (Shanghai Jiaotong University), Baoqi Guo (Kyoto University), Na Min (Shanghai University), Huibin Liu (Baoshan Iron & Steel Co), Nobuhiro Tsuji (Kyoto University)

11:35
Correlated microstructure evolution and Twin based hardening model for 17Mn-0.5C TWIP steel
Vivek Kumar Singh (Indian Institute of Technology Gandhinagar), Pradipta Ghosh (Indian Institute of Technology Gandhinagar, India)

11:50
Effect of grain refinement on serration behavior in high-Mn austenitic steel
Sukyoung Hwang (Kyoto university), Ryo Asada (Kyoto university), Myeong-heom Park (Kyoto university), Akinobu Shibata (National Institute for Materials Science (NIMS)), Nobuhiro Tsuji (Kyoto university)

12:05
Deformation behavior of an ultrafine-grained stainless steel at cryogenic temperatures studied by in situ neutron diffraction
Wenqi Mao (Northeastern University), Si Gao (Kyoto University), Wu Gong (Japan Atomic Energy Agency), Takuro Kawasaki (Japan Atomic Energy Agency), Stefanus Harjo (Japan Atomic Energy Agency), Nobuhiro Tsuji (Kyoto University), Lijia Zhao (Northeastern University), Qiang Wang (Northeastern University)

13:40 - 14:55

S10: Advanced characterization of deformation processes (7)
Chair.: Nobuo Nakada (Institute of Science Tokyo)

13:40
Tensile Deformation Mechanism of Bulk w-Ti Produced by High-Pressure Torsion - Straining
Yoshikazu Todaka (Toyohashi University of Technology), Haruki Yoshida (Toyohashi University of Technology), Nozomu Adachi (Toyohashi University of Technology), Satoshi Morooka (Japan Atomic Energy Agency), Pingguang Xu (Japan Atomic Energy Agency)

13:55
Three-Dimensional Climb and Glide Dislocation Mechanisms in TiAl Determined by Electron Tomography and Atom Probe Tomography
Jean-Philippe Monchoux (CNRS), Alain Couret (CNRS), Guy Molénat (CNRS), Michael Musi (Montanuniversität), Petra Spoerk-Erdely (Montanuniversität), Helmut Clemens (Montanuniversität), Daniel Ferry (CNRS)

14:10
Atomic Scale In-Situ STEM Observations of Sessile Dislocation Reactions
Shun Kondo (The University of Tokyo), Mingen Sou (The University of Tokyo), Takaaki Sato (The University of Tokyo), Eita Tochigi (The University of Tokyo), Naoya Shibata (The University of Tokyo), Yuichi Ikuhara (The University of Tokyo)

14:25
In-situ characterization of adiabatic shear banding using a planar S-shaped sample geometry at high shear strain rates
Mario Scholze (Chemnitz University of Technology), Luisa Schottstedt (Chemnitz University of Technology), Martin F.-X. Wagner (Chemnitz University of Technology)

14:40
A new full constraint testing device for shear strength measurement of bulk metal, or an interface, in small size metal specimen: equipment, testing, and theoretical analysis
Máté Sepsi (University of Miskolc), Máté Szűcs (University of Miskolc), Benedek Sziklai (University of Miskolc), Laszlo S Toth (University of Miskolc), Valéria Mertinger (University of Miskolc)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 3 (C-1)

11:00 - 12:20

S16: Mechanics of composite materials (1)
Chair.: Hiroyuki Miyamoto (Doshisha University)

11:00
(Invited) Study on the design and preparation of Be-Al and the regulation of interface structure
Wenshu Yang (Harbin Institute of Technology), Gaohui Wu (Harbin Institute of Technology), Zeyang Kuang (Harbin Institute of Technology), Yixiao Xia (Harbin Institute of Technology), Yutong Sun (Harbin Institute of Technology), Zhichao Han (Harbin Institute of Technology)

11:20
Strength and electrical conductivity of Cu/martensitic steel multilayered sheet
Norimitsu Koga (Kanazawa University), Ryusei Kato (Kanazawa University), Chihiro Watanabe (Kanazawa university)

11:35
Multi-layer interface design for particles to enhance strength and plasticity in Al composites
Yihao Wang (Shanghai Jiaotong University)

11:50
Microstructural morphology effects on the strength of Fe-Mg joint produced by eutectic-melt-induced liquid metal dealloying
Kota Kurabayashi (Tohoku university), Takeshi Wada (Tohoku university), Hidemi Kato (Tohoku university)

12:05
Effect of ultrasonic treatment on microstructure and properties of niobium silicon alloy
Qi Wang (Harbin Institute of Technology)

13:40 - 14:45

S16: Mechanics of composite materials (2)
Chair.: Wenshu Yang (Harbin Institute of Technology)

13:40
(Invited) Microstructure and mechanical properties of TiC/Al in-situ cast composites with various content of TiC particles
Wojciech Maziarz (Institute of Metallurgy and Materials Science, Polish Academy of Sciences)

14:00
Mechanisms of adhesion between polyamide and aluminum alloy: an all-atom molecular dynamics study
Toyoshi Yoshida (Osaka Metropolitan University), Takuya Kuwahara (Osaka Metropolitan University), Yoshihisa Kaneko (Osaka Metropolitan University)

14:15
Interface structure control and strengthening-toughening mechanism of graphene/Al composites
Boyu Ju (Harbin Institute of Technology), Jinpeng Sun (Harbin Institute of Technology), Pengfei Xi (Harbin Institute of Technology)

14:30
In-situ preparation technology of graphene reinforced magnesium matrix composites
Xiaojun Wang (Harbin Institute of Technology), Hailong Shi (Harbin Institute of Technology), Xuejian Li (Harbin Institute of Technology), Xiaoshi Hu (Harbin Institute of Technology), Chao Xu (Harbin Institute of Technology)

15:40 - 16:45

S16: Mechanics of composite materials (3)
Chair.: Wojciech Maziarz (Institute of Metallurgy and Materials Science, Polish Academy of Sciences)

15:40
(Invited) Microstructural changes and alumina reinforcement distribution derived from heat treatment and severe plastic deformation of aluminum swarf briquettes
Jetmira Uka (Brunel University London), Timothy Minton (Brunel University London), Yan Huang (Brunel University London), Brian McKAY (Brunel University London), Lorna Anguilano (Brunel University London), Ryosuke Takayasu (Doshisha University), Motohiro Yuasa (Doshisha University), Hiroyuki Miyamoto (Doshisha University), Zenji Horita (Kyushu Insitute of Technology), Yoichi Takizawa (Nagano Forging Co.), Manabu Yumoto (Nagano Forging Co.), Sarah Glanvill (Renishaw)

16:00
Coordinated deformation and strengthening-toughening mechanisms of multilayer graphene/Al composites
Ziyang Xiu (Harbin Institute of Technology), Gaohui Wu (Harbin Institute of Technology), Boyu Ju (Harbin Institute of Technology), Jinpeng Sun (Harbin Institute of Technology), Pengfei Xi (Harbin Institute of Technology)

16:15
Effect of strain rate onto mechanical properties of unidirectional carbon fiber-reinforced plastics
Stepan D Konev (Skolkovo Institute of Science and Technology), Aleksandr Yu Konstantinov (Institute of Information Technologies, Mathematics and Mechanics; Lobachevsky University), Ivan V Sergeichev (Skolkovo Institute of Science and Technology)

16:30
Strengthening, plasticity and fracture mechanisms at the crystalline metal/amorphous oxide interface in Al/Al2O3 nanolaminates
Thomas Edward James EDWARDS (National Institute for Materials Science), Barbara Putz (Swiss Federal Laboratories for Materials Science and Technology), Hendrik Jansen (Swiss Federal Laboratories for Materials Science and Technology), Seiichiro Ii (National Institute for Materials Science), Johann Michler, Professor (National Institute for Materials Science)

Program at a Glance

Day 5: Friday - June 6th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 4 (C-2)

11:00 - 12:05

S3: Mechanical behavior of high entropy alloys (7)
Chair.: Yunjiang Wang (Institute of Mechanics, Chinese Academy of Sciences)

11:00
(Invited) Exploring work-hardening mechanisms and the strength-ductility trade-off in FCC high-entropy alloys
STEPHANE GORSSE (Université de Bordeaux), MOHAMED GOUNE (Université de Bordeaux)

11:20
Effects of interstitial carbon on the strength and ductility of carbide-free high-entropy alloys
Wei Fang (Hebei University of Technology), Chang Liu (Hebei University of Technology), Shuhei Yoshida (Kyoto University), Pingguang Xu (Japan Atomic Energy Agency), Nobuhiro Tsuji (Kyoto University)

11:35
Design of high yield strength nitrogen-rich austenitic high-entropy alloys
Mathieu Traversier (Ecole des Mines de Saint-Etienne), Xavier Boulnat (INSA Lyon), Franck Tancret (Nantes University), Jean Dhers (Newcleo), Anna Fraczkiewicz (Ecole des Mines de Saint-Etienne)

11:50
Tensile behavior and deformation mechanisms of a novel single-phase VMnFeCoNi high-entropy alloy
Aditya Srinivasan Tirunilai (Ruhr-University Bochum)

13:40 - 14:40

S3: Mechanical behavior of high entropy alloys (8)
Chair.: Marie Münchhalfen (Ruhr University Bochum)

13:40
Deformation and Failure of TiZrNbHfTa Refractory High-Entropy Alloys
Bernd Gludovatz (UNSW Sydney), William Carpenter (University of Tennessee), Moses J. Paul (Nanyang Technological University), Jamie J. Kruzic (UNSW Sydney), Easo P. George (Oak Ridge National Laboratory)

13:55
Microstructure and mechanical properties of heavily cold-rolled and annealed high entropy alloy with highly deformable Laves phase
Pankaj Kumar Ojha (Indian Institute of Technology Hyderabad), Upender Sunkari (Indian Institute of Technology Hyderabad), Shuhei Yoshida (Kyoto University), Nobuhiro Tsuji (Kyoto University), Pinaki Prasad Bhattacharjee (Indian Institute of Technology Hyderabad)

14:10
Grain size dependence of deformation behavior and strengthening mechanisms in TiZrHf medium entropy alloy with HCP single phase
Xiang LI (Kyoto University), Shuhei YOSHIDA (Kyoto University), Yan CHONG (Suzhou Laboratory), Nobuhiro TSUJI (Kyoto University)

14:25
Conquering intermediate-temperature embrittlement in high-entropy alloys by grain-boundary design
Boxuan CAO (Harbin Institute of Technology (Shenzhen)), Tao YANG (City University of Hong Kong), C.T. LIU (City University of Hong Kong)

15:40 - 16:45

S3: Mechanical behavior of high entropy alloys (9)
Chair.: Bernd Gludovatz (UNSW Sydney)

15:40
(Invited) The role of chemical short-range order in mechanics and stability of high-entropy alloys
Yunjiang Wang (Institute of Mechanics, Chinese Academy of Sciences)

16:00
Solid solution and precipitation strengthening of MPE-Ti alloys
Kibeom KIM (University of Tokyo), Sae MATSUNAGA (University of Tokyo), Yoko YAMABE-MITARAI (University of Tokyo)

16:15
Novel Ductile Ti-based Refractory Compositionally Complex Alloy with Improved Thermomechanical Capability
Amin Radi (Karlsruhe Institute of Technology), Sandipan Sen (Karlsruhe Institute of Technology), Daniel Schliephake (Karlsruhe Institute of Technology), Chongchong Tang (Karlsruhe Institute of Technology), Bronislava Gorr (Karlsruhe Institute of Technology), Martin Heilmaier (Karlsruhe Institute of Technology), Alexander Kauffmann (Karlsruhe Institute of Technology)

16:30
Thermal expansion and elastic properties of Co-based superalloys
Marie Münchhalfen (Ruhr University Bochum), Jürgen Schreuer (Ruhr University Bochum), Guillaume Laplanche (Ruhr University Bochum)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 5 (G)

11:00 - 12:25

S4: Effects of grain boundaries and interfaces (6)
Chair.: Zhenbo Zhang (ShanghaiTech University)

11:00
(Invited) Continuous Production of Severely Plastically Deformed Strips
Satish Vasu Kailas (Indian Institute of Science), Nikhil T G (Indian Institute of Science), Satyam Suwas (Indian Institute of Science), Laszlo S Toth (University of Lorraine), Roxane Massion (University of Lorraine)

11:20
(Invited) Phase Field Study of Acicular Growth at Grain Boundaries: Influence of Interface Coherency
Benoit Appolaire (Université de Lorraine), Ahmed Dimokrati (Université de Lorraine), Maeva Cottura (Université de Lorraine)

11:40
Mechanical and Thermal Stability of Nanocrystalline Ni-0.8%Sn
Alka Jangid (Indian Institute of Technology Kanpur), Pradipta Ghosh (Indian Institute of Technology Gandhinagar), Sudhanshu Shekhar Singh (Indian Institute of Technology Kanpur), Nilesh Badwe (Indian Institute of Technology Kanpur)

11:55
On the Grain Growth Kinetics in Micron-Sized Nickel Wire: Effects of Temperature and Time
Divanshu Kumar (IIT Kanpur)

12:10
Novel non-flammable magnesium alloys processed by equal channel angular pressing
Stanislav Sasek (Charles University), Jitka Straska (Charles University), Michal Knapek (Charles University), Jiri Kubasek (University of Chemistry and Technology), Peter Minarik (Charles University)

13:40 - 15:00

S4: Effects of grain boundaries and interfaces (7)
Chair.: Benoit Appolaire (Université de Lorraine)

13:40
(Invited) On the role of coherent and incoherent twin boundaries in strain localization and fatigue behavior of nickel-based superalloy
Zhenbo Zhang (ShanghaiTech University), Xiaochen Li (ShanghaiTech University)

14:00
Microstructure evolution and evaluation of interface strength between FCC and BCC structure in Ni–Cr binary alloys
Ryota Nagashima (Institute of Science Tokyo), Nobuo Nakada (Institute of Science Tokyo)

14:15
Growth Twins in binary and ternary Ni-Based Alloys via a combinatorial approach
Ashley Janice Maldonado Otero (University of Southern California)

14:30
Nano Plasticity near Grain Boundaries in Ti2SiC2-MAX Phase Ceramic
Koji Morita (National Institute for Materials Science), Tokifusa Higuchi (Institute of Technology), Daisuke Terada (Institute of Technology), Takahito Ohmura (National Institute for Materials Science)

14:45
Restoration of exceptional mechanical properties of Al-Cu-Li (AA 2198) alloy post friction stir processing via recovery of T1 precipitates
Vishal Shambu (IITB), Dhanendra Kumar Sahu (IITB), Haripria Padmaganesan (IITB), Niraj Nayan (IITB), Prasad M.J.N.V (IITB)

Program at a Glance

Day 5: Friday - June 6th

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 6 (H)

11:00 - 12:20

S6: Mechanical behavior associated with phase transformations (8)
Chair.: Marek Smaga (RPTU Kaiserslautern-Landau)

11:00
(Invited) TRIP effect in duplex stainless steels and role of constituent phases studied by in situ neutron diffraction experiments
Noriyuki Tsuchida (University of Hyogo), Naoki Hirakawa (Nippon Steel Stainless Steel Corporation), Jun-ichi Hamada (Nippon Steel Stainless Steel Corporation), Eiichiro Ishimaru (Nippon Steel Stainless Steel Corporation)

11:20
TRIP effect in Zirconia: atomistic simulations and in-situ experiments
Gael Huynh (University Claude Bernard Lyon 1), Jin-Yu Zhang (Osaka University), Marcelo Demetrio de Magalhaes (INSA Lyon), Tristan Albaret (University Claude Bernard Lyon 1), David Rodney (University Claude Bernard Lyon 1)

11:35
Strain localization behavior during tensile deformation of fine-grained 304 stainless steel
Si Gao (Kyoto University), Yu Bai (Dalian University of Technology), Ruixiao Zheng (Beihang University), Yanzhong Tian (Northeast University), Wenqi Mao (Key Laboratory of Electromagnetic Processing of Materials (Ministry of Education)), Akinobu Shibata (National Institute for Materials Sciences), Nobuhiro Tsuji (Kyoto University)

11:50
Microstructure evolution and mechanical properties of functionally graded corrosion-resistant lightweight steel
Jeong-Hun KIM (Changwon National University), Joonoh Moon (Changwon National University), Heung Nam Han (Seoul national university), Siwhan Lee (Seoul national university), Heon-Young Ha (Korea institute of materials science), Seong-Jun Park (Korea institute of materials science)

12:05
Simultaneous Enhancement of Strength and Ductility in Polycrystalline Pure Cobalt through Stabilizing High-Temperature FCC Phase
Takumi Suzumura (Kyoto University), Si Gao (Kyoto University), Shuhei Yoshida (Kyoto University), Nobuhiro Tsuji (Kyoto University)

13:40 - 14:45

S13: Effects of hydrogen (3)
Chair.: Maria Vrellou (Karlsruhe Institute of Technology)

13:40
(Invited) Hydrogen Effect on Screw Dislocation Mobility in BCC-Fe
Jun-Ping Du (Osaka University), Shigenobu Ogata (Osaka University)

14:00
Hydrogen-dislocation loop interaction in α-iron: a first-principles neural network simulation study
Shihao ZHANG (Osaka University), Shigenobu OGATA (Osaka University)

14:15
On the effect of high pressure hydrogen and deuterium charging at elevated temperatures of austeniti
Jan-Oliver Hücking (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)), Heinz Werner Höppel (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)), Peter Felfer (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU))

14:30
Variable Hydrogen Effect on Metal Vacancy Diffusion
Shihao Zhu (Osaka University), Shihao Zhang (Osaka University), Shigenobu Ogata (Osaka University)

15:40 - 16:40

S13: Effects of hydrogen (4)
Chair.: Jun-Ping Du (Osaka University)

15:40
Fatigue behavior and electromagnetic characterization of the damage progression of pressurized hydrogen-loaded hollow specimens
Maximilian K.-B. Weiss (Leibniz Universität Hannover), Sebastian Barton (Leibniz Universität Hannover), Hans Jürgen Maier (Leibniz Universität Hannover)

15:55
Optimization of pulse electrodeposition parameters for enhanced resistance to corrosion and hydrogen permeation of zinc coatings
Akshay Yadav (IISc), Akhand Pratap Singh (IISc), Chandan Srivastava (IISc)

16:10
Hydrogen-induced softening of Pd nanoparticles: The role of dislocation formation during hydrogen cycling
Maria Vrellou (KIT), Jonathan Zimmerman (Technion – Israel Institute of Technology), Iago Bischoff (KIT), Kilian Quiring (KIT), Konrad Prikoszovich (KIT), Subin Lee (KIT), Xufei Fang (KIT), Stefan Wagner (KIT), Astrid Pundt (KIT), Eugen Rabkin (Technion – Israel Institute of Technology), Christoph Kirchlechner (KIT)

16:25
Evaluation of Pressure Reversal Susceptibility in ERW Welded Pipes in Sour Environment
Jong-min Baek (National Changwon University), Chan-Hee Lee (National Changwon University), Hyun-Uk Hong (National Changwon University), Jin-Seop Kwack (Hyundai-steelpipe), Dong-Hyeon Jeon (Hyundai-steelpipe)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 7 (501)

11:00 - 12:25

S14: Materials under extreme conditions (2)
Chair.: Alexander Kauffmann (Ruhr University Bochum)

11:00

(Invited) Relative Mobility of Screw versus Edge Dislocations Controls the Ductile-to-Brittle Transition in Metals
WEIZHONG HAN (XI`AN JIAOTONG UNIVERSITY)

11:20

(Invited) High-throughput Design of Light and Strong Refractory High Entropy Alloys with Outstanding Irradiation Resistance
Chao Yang (Shanghai Jiao Tong University), Da Shu (Shanghai Jiao Tong University), Peter K Liaw (The University of Tennessee)

11:40

Enhanced Mechanical Properties of Al5082-O Alloy at Cryogenic Temperatures: Insights from Advanced DIC Analysis and Microstructural Evaluation
Jongwon Lee (Yeungnam University), Seongjun Heo (Yeungnam University), Hyomin Kim (Material Solution Park Ltd.), Eunjin Lee (Kyungsung University), Unhae Lee (Kyungsung University), Nokeun Park (Yeungnam University)

11:55

Proton irradiation effects on multi-principal element alloy
Chethan Konkati (Indian Institute of Science), Gayathri N (Variable energy cyclotron centre), Paramita Mukherjee (Variable energy cyclotron centre), Ankur Chauhan (Indian Institute of Science)

12:10

Deformation dynamics in FCC-to-BCC transformative 316L stainless steel at 4.2 K
Cho Hyeon Lee (Kookmin University), Won Hui Jo (Kookmin University), Min-young Lee (Kookmin University), Jeong-woong Park (Kookmin University), Muhammad Ishtiaq (Materials Engineering and Convergence Technology), Young Kyun Kim (Korea Institute of Materials Science), Hyun Joo Choi (Kookmin University), Ki Sub Cho (Kookmin University), Hyo Kyung Sung (Kookmin University), Sung Gyu Kang (Materials Engineering and Convergence Technology), Young Sang Na (Korea Institute of Materials Science), Jae Bok Seol (Kookmin University)

13:40 - 14:45

S14: Materials under extreme conditions (3)
Chair.: Chao Yang (Shanghai Jiao Tong University)

13:40

(Invited) Development of Ductile and Oxidation Resistant Cr-Mo-Si Solid Solutions
Alexander Kauffmann (Karlsruhe Institute of Technology (KIT)), Gabriely Falcão (Karlsruhe Institute of Technology (KIT)), Sri Rathinamani Ramdoss (Karlsruhe Institute of Technology (KIT)), Frauke Hinrichs (Karlsruhe Institute of Technology (KIT)), Daniel Schliephake (Karlsruhe Institute of Technology (KIT)), Georg Winkens (Karlsruhe Institute of Technology (KIT)), Haruyuki Inui (Kyoto University), Ruth Schwaiger (Karlsruhe InstitutForschungszentrum Jülich GmbH), Martin Heilmaier (Karlsruhe Institute of Technology (KIT))

14:00

Deformation Behavior of Nb-Alloy C103 at Ultra-High Temperatures
Suraj Kumar (Indian Institute of Science), Vikram Jayaram (Indian Institute of Science), Praveen Kumar (Indian Institute of Science), Zafir Alam (Defence Metallurgical Research Laboratory (DMRL)), K. Gopinath (Defence Metallurgical Research Laboratory (DMRL))

14:15

The study of microstructure evolution during tempering heat treatment in 9-12Cr heat-resistant steel.
Bong Cheon Park (KIMS), Sung-Dae Kim (Pukyong National University), Ihho Park (KIMS), Jae Hoon Jang (KIMS), Namhyun Kang (Pusan National University)

14:30

Effect of Carbon Allotropes on the Microstructure and Mechanical Properties of HfB_2 Ceramics for Ultra-High Temperature Applications
Shruti Dubey (IIT Kanpur), Shiven P (IIT Kanpur), Kantesh Balani (IIT Kanpur)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 8 (510)

11:00 - 12:20

S8: Strength of additive-manufactured materials (7)
Chair.: Satyam Suwas (Indian Institute of Science)

11:00
(Invited) Multi-scale microstructure manipulation of an additively manufactured CoCrNi medium entropy alloy
Xiaopeng Li (The University of New South Wales (UNSW Sydney))

11:20
Towards Tailored Microstructure of LPBF SS316L for Improved Strength Toughness Combination
Kartikey Sharma (Indian Institute of Technology Bombay), Balila Nagamani Jaya (Indian Institute of Technology Bombay)

11:35
Laser Powder Bed Fusion Additive Manufacturing of SS201: Processing Optimization, Microstructure and Mechanical Properties
Suraj Prasad (Indian Institute of Technology Bombay), Prita Pant (Indian Institute of Technology Bombay)

11:50
Exploring the impact of heat treatment on room and high-temperature strength of 316L stainless steel fabricated by laser powder bed fusion
Patricia Suárez Ocano (Bundesanstalt für Materialforschung und –prüfung (BAM)), Luis Alexander Ávila Calderón (Bundesanstalt für Materialforschung und –prüfung (BAM)), Leonardo Agudo Jácome (Bundesanstalt für Materialforschung und –prüfung (BAM)), Birgit Rehmer (Bundesanstalt für Materialforschung und –prüfung (BAM)), Birgit Skrotzki (Bundesanstalt für Materialforschung und –prüfung (BAM))

12:05
Nano-scaled solidification microstructure characteristics in additively manufactured 316L stainless steel
Fei Sun (Nagoya University), Yoshitaka Adachi (Nagoya University), Kazuhisa Sato (Osaka University), Takuya Ishimoto (University of Toyama), Takayoshi Nakano (Osaka University), Yuichiro Koizumi (Osaka University)

13:40 - 15:00

S8: Strength of additive-manufactured materials (8)
Chair.: Xiaopeng Li (The University of New South Wales (UNSW Sydney))

13:40
(Invited) Deformation mechanisms in additively manufactured and heat treated Hastelloy X
Satyam Suwas (Indian Institute of Science)

14:00
Stress and temperature dependent change in deformation mechanism in additively manufactured NiAl-CrMo in-situ composite
Jan Vollhüter (Friedrich-Alexander-Universität Erlangen-Nürnberg), Katharina Titz (Friedrich-Alexander-Universität Erlangen-Nürnberg), Benjamin Wahlmann (Friedrich-Alexander-Universität Erlangen-Nürnberg), Carolin Körner (Friedrich-Alexander-Universität Erlangen-Nürnberg), Steffen Neumeier (Friedrich-Alexander-Universität Erlangen-Nürnberg), Mathias Göken (Friedrich-Alexander-Universität Erlangen-Nürnberg)

14:15
In-situ X-ray diffraction study for understanding strengthening mechanisms of AM Al-Mg-Si alloy
Yuki Otani (Nagoya University), Masahiro Hirata (University of Hyogo), Naoki Takata (Nagoya University), Asuka Suzuki (Nagoya University), Makoto Kobashi (Nagoya University), Junji Umeda (Aichi Center for Industry and Science Technology), Hiroki Adachi (University of Hyogo)

14:30
How the Gleeble Smart Lab Works in ICME New Alloys Development
Wayne Chen (Dynamic Systems, Inc.), Randy Metevier (Dynamic Systems, Inc.), Yongkang Yu (Dynamic Systems, Inc.)

14:45
Comparison of TiB2-rainfoced SUS316L manufactured by DED and PBF using TiB2-Fe composite powder
Ryo Otsuka (Nippon denko CO., Ltd.), Takahiko Kikuchi (Nippon denko CO., Ltd.), Shingo Katayama (Nippon denko CO., Ltd.)

Invited talk: 20min for presentation + discussion / General talk: 15min for presentation + discussion

Room 9 (555)

11:00 - 12:20

S7: Mechanical behavior of heterogeneous materials (7)
Chair.: Andrea M Hodge (University of Southern California)

11:00
(Invited) Harmonic structure design beyond the limits of structural materials
Kei Ameyama (Ritsumeikan University)

11:20
Processing Contributions to Strength Variability in Heterostructured and Gradient Materials
Joshua M. Edwards (Colorado School of Mines), Ruben B. Ochoa (Colorado School of Mines), Adam B. Freund (Colorado School of Mines), Sina Sharazaei (University of California, Riverside), Christian J. Roach (University of California, Riverside), Suveen N. Mathaudhu (Colorado School of Mines)

11:35
Wear and Impact Properties of Harmonic Structure Composite with WC-Co Alloy and High-Speed Steel
Hiroshi Fujiwara (Ritsumeikan University)

11:50
Effect of ligament microstructure on the mechanical strength of hierarchical micro-porous copper
Chengfeng Zhang (Tsinghua University), Shuo Sun (Tsinghua University)

12:05
The Microstructure Design of Dual-phase steel from Latent Variables Optimized by Bayesian Optimization
Ta-Te Chen (Nagoya University), Yoshihito Fukatsu (JFE steel Corporation), Ikumu Watanabe (National Institute for Materials Science), Toshio Ogawa (Aichi Institute of Technology), Fei Sun (Nagoya University), Mayumi Ojima (JFE steel Corporation), Shin Ishikawa (JFE steel Corporation), Yoshitaka Adachi (Nagoya University)

13:40 - 15:20

S7: Mechanical behavior of heterogeneous materials (8)
Chair.: Kei Ameyama (Ritsumeikan University)

13:40
(Invited) Research on Formability of Multi-Phase and Metastable Advanced High-Strength Automotive Steels
Lijia Zhao (Northeastern University), Liu Haibo (Northeastern University), Mao Wenqi (Northeastern University), Wang Qiang (Northeastern University)

14:00
(Invited) Accelerated Materials Design for Ni Superalloys: The DRAGONS Project
Andrea M Hodge (University of Southern California)

14:20
Thermal Stability of Internal Stress in Carbon Steel with Pearlite Elongated by Rolling
Rintaro Ueji (NIMS), Hidetoshi Somekawa (NIMS), Akinobu Shibata (NIMS), Satoshi Emura (NIMS), Tsubasa Tokuzumi (NIMS)

14:35
Local stress visualization by digital image correlation (DIC) technique
Myeong-heom Park (Kyoto University), Saho Yako (Kyoto University), Akinobu Shibata (National Institute for Materials Science), Nobuhiro Tsuji (Kyoto University)

14:50
Insights into manganese-silicate inclusions in iron towards enhanced steel performance
Sándor Lipcsei (École Polytechnique Fédérale de Lausanne), David Hernández Escobar (École Polytechnique Fédérale de Lausanne), Andreas Mortensen (École Polytechnique Fédérale de Lausanne)

15:05
Microstructure Tailoring of High-Strength Fe-Mn-C Ghost Pearlite
Marcel Muench (Karlsruhe Institute of Technology), Lukas Reichherzer (Karlsruhe Institute of Technology), Reza Gholizadeh (Kyoto University), Nobuhiro Tsuji (Kyoto University), Yolita M. Eggeler (Karlsruhe Institute of Technology), Martin Heilmaier (Karlsruhe Institute of Technology), Alexander Kauffmann (Karlsruhe Institute of Technology)

Poster session 1 (Poster No. = Odd)

Day 2: Tuesday - June 3rd

Annex Hall 16:30 - 18:00

No.01	**Deformation behavior of 2205 duplex stainless steel containing island austenite** Gang Lu (Northeastern University), Wenxin Wang (Notheastern University), Jianjun Wang (Notheastern University)
No.03	**Investigation of Dynamic Hall-Petch Effect in High-Mn Austenitic Steel** Taigi IITSUKA (Kyoto University), Sukyoung Hwang (Kyoto University), Myeong-heom Park (Kyoto University), Nobuhiro Tsuji (Kyoto University)
No.05	**Enhancing the strength and ductility of low carbon low alloy steel via architecting heterogeneous structure** Chenhe Wang (Shanghai Jiao Tong University), Ran Chen (Shanghai Jiao Tong University), Chenyang Wang (Shanghai Jiao Tong University), Yumeng Zhang (Shanghai Jiao Tong University), Xiaodong Wang (Shanghai Jiao Tong University)
No.07	**Ion Conduction and Diffusion Mechanism in All-Soild-State Batteries : Molecular Dynamics Simulation of Li-S Crystals** DU RONGJIA (Kansai university)
No.09	**Processing of TiB2-Fe composite powders as a raw material of TiB2-reinfoced steels** Shingo Katayama (NIPPON DENKO Co., Ltd.), Takahiko Kikuchi (NIPPON DENKO Co., Ltd.), Ryou Otsuka (NIPPON DENKO Co., Ltd.)
No.11	**Dynamic hydrogen trap effect of carbide precipitates in martensitic steel** Fenghua Lu (Shanghai Jiao Tong University), Hongzhou Lu (CITIC Metal), Na Min (Shanghai University), Wei Li (Shanghai Jiao Tong University)
No.13	**Temperature Dependence of Incipient Plasticity in Tungsten** Florian Tropper (National Institute for Materials Science), Takahito Ohmura (National Institute for Materials Science)
No.15	**Comprehending the formability-natural aging stability time paradox in Al-Mg-Si alloys and developing mitigating pathways** Jyoti Ranjan Sahoo (Indian Institute of Technology, Roorkee), Sumeet Mishra (Indian Institute of Technology)
No.17	**The Nucleation of Disclinations and Their Role in the Mechanical Properties of Twisted Carbon Nanotube Bundles** Tong Lu (Institute of Science Tokyo), Xiao-Wen Lei (Institute of Science Tokyo), Toshiyuki Fujii (Institute of Science Tokyo)
No.19	**Microstructure based constitutive modeling of flow curve for high-nitrogen steel at high strain rates and temperatures** Bhanu Pratap Singh (Indian Institute of Technology Roorkee), Amit Kumar Yadav (Indian Institute of Technology Kanpur)
No.21	**First-principles study of the crystal structure prediction and stacking fault energies in basal and second-order pyramidal slip systems of Mg-Y alloys** Eiki Kosakamoto (Kumamoto university), Takao Tsumuraya (Kumamoto University), Shinji Ando (Kumamoto University)
No.23	**Quantitative investigation of local deformation behavior during Lüders deformation in low-carbon ferrite + pearlite steels** Takehiro Kobayashi (Kyoto university), Myeong-heom Park (Kyoto university), Sukyoung Hwang (Kyoto university), Nobuhiro Tsuji (Kyoto university)
No.25	**Formation Process of Cell Structure During Cyclic Deformation in an Fe-1 mass% Si Alloy** Zhenbang CHAI (Institute of Science Tokyo), Tomotaka MIYAZAWA (Institute of Science Tokyo), Toshiyuki FUJII (Institute of Science Tokyo), Takumi OSANAI (Nippon Steal Corporation), Eisaku SAKURADA (Nippon Steal Corporation)
No.27	**Microstructural evolution and failure mechanism of conventionally and additively manufactured H13 tool steel in very high cycle fatigue regime** Sumit Katiyar (Indian Institute of Technology, Madras (IITM)), Akshay Kumar Chaturvedi (Indian Institute of Technology, Madras (IITM)), Murugaiyan Amirthalingam (Indian Institute of Technology, Madras (IITM)), S. Ganesh Sundara Raman (Indian Institute of Technology, Madras (IITM))
No.29	**Toughening of intercritical annealed 10%Mn-0.1%C steel via suppression of intergranular fracture by Mo addition** Hajime Kubota (Kyushu-University), Toshihiro Tsuchiyama (Kyushu-University), Takuro Masumura (Kyushu-University), Ryuji Uemori (Kyushu-University), Misa Takanashi (Kyushu-University), Takuya Maeda (Nippon Steel Corporation), Shuichi Nakamura (Nippon Steel Corporation)
No.31	**Crack Growth Behavior in Residual Stress Field under Low Cycle Fatigue Loading Condition** Jenika Mistry (Indian Institute of Technology Kanpur), Vipin Chandra (Indian Institute of Technology Kanpur), Pritam Chakraborty (Indian Institute of Technology Kanpur)
No.33	**Creep behavior of a Ni3Al based single crystal superalloys under thermal gradient condtion** Zengkai Zhang (BEIHANG UNIV), Yong Shang (BEIHANG UNIV), Yanling Pei (BEIHANG UNIV), Shusuo Li (BEIHANG UNIV), Shengkai Gong (BEIHANG UNIV)
No.35	**Relationship between grain boundary sliding and strain distribution introduced by high-temperature tensile deformation** Kotaro TANABE (Kanazawa university), Norimitsu Koga (Kanazawa University), Hiroyuki Kawata (Nippon Steel Corporation), Tomohiro Nishiura (Nippon Steel Corporation), Naoki Maruyama (Osaka University)
No.37	**Effect of high-temperature compression on ultrafine α + θ pearlitic structures in medium Mn steels** Kota Kato (Kyoto university), Myeong-heom Park (Kyoto university), Baoqi Guo (Kyoto university), Nobuhiro Tsuji (Kyoto university)
No.39	**The effect of aging on the brittle-to-ductile transition of Cu-added ferritic steels** Masaharu Takagi (Kyushu University), Tatsuya Morikawa (Kyushu University), Shigeto Yamasaki (Kyushu University), Masaki Tanaka (Kyushu University), Takanori Ito (Kobe Steel LTD.), Masahiro Inomoto (Kobe Steel LTD.), Shigenobu Nanba (Kobe Steel LTD.)
No.41	**Microstructure and deformation behavior of heterogeneous nano-structured austenitic stainless steel pre-deformed at a cryogenic temperature** Tsukasa Kakinuma (Kanazawa University), Chihiro Watanabe (Kanazawa University), Norimitsu Koga (Kanazawa University), Hiromi Miura (Toyohashi University of Technology)

Poster session 1 (Poster No. = Odd)

Day 2: Tuesday - June 3rd

Annex Hall 16:30 - 18:00

No.43	**Microstructure observation of Al-Si-Mg alloy after demold at 473K** Motoki Abe (University of Toyama)
No.45	**Tensile deformation of cold rolled Fe-Ni-C metastable austenitic steel investigated by in-situ synchrotron XRD** Naoki Harada (Kyoto University), Si Gao (Kyoto University), Nobuhiro Tsuji (Kyoto University)
No.47	**Deformation Behavior of Medium Manganese-based Advanced High-Strength Steels: Effect of Composition and Thermomechanical Processing** Sayeri Chatterjee (Indian Institute of Technology Bombay), K. Nandini (Indian Institute of Technology Bombay), Nitesh K. Gouda (Indian Institute of Technology Bombay), A. Durga (Indian Institute of Technology Bombay), Sanjay Chandra (Indian Institute of Technology Bombay), M.J.N.V. Prasad (Indian Institute of Technology Bombay)
No.49	**Studies on tensile deformation behavior of extruded Mg97Y2Zn1 alloys by in-situ neutron diffraction and acoustic emission measurement** Kosho Horiguchi (Kumamoto University), Soya Nishimoto (Kumamoto University), Stefanus Harjo (J-PARC center), Wu Gong (J-PARC center), Daria Drozdenko (Charles University), Koji Hagihara (Nagoya Institute of Technology), Toko Tokunaga (Nagoya Institute of Technology), Michiaki Yamasaki (Kumamoto University)
No.51	**Improvement of Strength and Ductility of Near α Titanium Alloy by Incorporating Bimodal Grain Size Microstructure via Heat Treatment** Tatsuaki Sakamoto (Ehime University), Yusuke Morimoto (Ehime University)
No.53	**Preparation of bulk Al-Ti-V-Cr-Si low-density high-entropy alloy using shock compression** Yuto Yoshiichi (National Defense Academy), Hiroaki Kishimura (National Defense Academy)
No.55	**Characterization of a multiphase MoNbVTaWC refractory carbide and its utilization as a dispersion for strengthening aluminium** Ipsita Madhumita Das (Indian Institute of Technology Bhubaneswar), Hemant Kumar (Indian Institute of Science Bangalore), Kishore K Behera (Indian Institute of Technology Madras), Surendra Makineni (Indian Institute of Science Bangalore), Srinivasa R Bakshi (Indian Institute of Technology Madras), Animesh Mandal (Indian Institute of Technology Bhubaneswar), Srikant Gollapudi (Indian Institute of Technology Bhubaneswar)
No.57	**Chemical heterogeneity modulated planar faults in nanoprecipitate to achieve enhanced mechanical properties** Qing Zhang (Shanghai Jiao Tong University), Tao Yang (City University of Hong Kong), Yuchi Cui (Shanghai Jiao Tong University), Yixuan Hu (Shanghai Jiao Tong University), Daisuke Egusa (The University of Tokyo), Eiji Abe (The University of Tokyo), Mingjiang Jin (Shanghai Jiao Tong University), Zhe Chen (Shanghai Jiao Tong University), Xiaodong Wang (Shanghai Jiao Tong University)
No.59	**Compositional and Microstructural Gradation in Ni-Co Alloys: Achieving Superior Strength-Ductility Synergy** HARIPRIA THORVANTH PADMAGANESAN (Indian Institute of Technology Bombay), Prasad MJNV (Indian Institute of Technology Bombay)
No.61	**FTMP-Implemented 3D Simulator for Formation of Dislocation Cell Structure** SATORU SHIOMI (Kobe University), SHOTA SATO (Kawasaki Motors, Ltd), TADASHI HASEBE (Kobe University)
No.63	**Molecular Dynamics Calculations for Localized Shear Properties of Polycarbonate using Computational Homogenization Framework** Yuto Lewis Terashima (Keio University), Paul Edward Brumby (Keio University), Takahiro Murashima (Tohoku University), Varvara Kouznetsova (Eindhoven University of Technology), Mayu Muramatsu (Keio University)
No.65	**FTMP-based Virtual Experiments to Explore Deformation Fracture Transitions** Rikuto Nakamura (Kobe University), Tadashi Hasebe (Kobe University)
No.67	**Thermally activated deformation in FeCr single-crystal micropillars with decomposed structures** Kento Kutsukake (Nagoya University), Akihiro Choshi (Nagoya University), Dasom Kim (Nagoya University), Naoki Takata (Nagoya University), Asuka Suzuki (Nagoya University), Makoto Kobashi (Nagoya University), Motoyuki Tsukamura (JFE Steel Corporation), Masataka Yoshino (JFE Steel Corporation)
No.69	**Atomistic Simulation of Plate Forming: Nucleation and Development of Dislocations in Copper Nano-sheets** Hiroki Teramoto (Kansai University), Ken-ichi Saitoh (Kansai University), Masanori Takuma (Kansai University), Yoshimasa Takahashi (Kansai University), Tomohiro Sato (Kansai University)
No.71	**Deformation Behavior of Crystalline Alumina under Electron-Beam Irradiation** Jeongin Paeng (Seoul National University), Sung-Gyu Kang (Gyeongsang National University), Young-Kyun Kwon (Kyung Hee University), Minsik Oh (Seoul National University), Eunsu Lee (Seoul National University), In-Suk Choi (Seoul National University)
No.73	**Microstructural control of cast Al-Si-Cu-RE alloys produced through rapid unidirectional solidification** Shuhei Takeuchi (Okayama University), Mitsuhiro Okayasu (Okayama University)
No.75	**R & D on New High Strength Ti -alloys** Yongqing Zhao (Northwest Institute for Nonferrous Metal Research)
No.77	**Accelerating Phase-Field Simulations of Microstructure Evolution with a Novel Physics-Informed Operator Learning Framework** Yusuke Yamazaki (Keio University), Reza Najian Asl (Technical University of Munich), Mayu Muramatsu (Keio University), Markus Apel (Access e.V.), Shahed Rezaei (Access e.V.)

Poster session 1 (Poster No. = Odd)

Day 2: Tuesday - June 3rd

Annex Hall 16:30 - 18:00

No.79	**Microstructure and High-Temperature Mechanical Properties of Additive-Manufactured Al-Fe-Cr-Si Alloy** Yifan Xu (Nagoya university), Koki Minamihama (Nagoya university), Naoki Takata (Nagoya university), Asuka Suzuki (Nagoya university), Makoto Kobashi (Nagoya university), Junji Umeda (Aichi Center for Industry and Science Technology)
No.81	**Mechanical response of melt-pool structure in additive-manufactured Fe-Ni-Nb alloy** Shuntaro Katakami (Nagoya University), Dasom Kim (Nagoya University), Wenyuan Wang (Nagoya University), Naoki Takata (Nagoya University), Asuka Suzuki (Nagoya University), Makoto Kobashi (Nagoya University), Junji Umeda (Aichi Center for Industry and Science Technology)
No.83	**Effect of Annealing on mechanical and electrical properties of L-PBF Al-Fe alloy with third alloying element** Kotaro Tokue (Kanazawa University), Kazuhiro Ishikawa (Kanazawa University), Hiroki Adachi (University of Hyogo), Naoki Takata (Nagoya University), Yoji Miyajima (Kanazawa University)
No.85	**Study of Microstructure and Mechanical Properties of Mg-Zn-Al alloy with Li Addition by Heat Treatment** Yongho Kim (Korea institute industrial technology), Hyosang Yoo (Korea institute industrial technology), Byeongkwon Lee (Korea institute industrial technology), Eunchan Ko (Korea institute industrial technology), Hyeontaek Son (Korea institute industrial technology)
No.87	**Microstructural Changes of Drawn Pearlitic Steel with In-situ Heating in TEM** Satoshi Hata (Kyushu University), Shichun Wang (Kyushu University), Yifang Zhao (Kyushu University), Tomoaki Ishii (Kyushu University), Hongye Gao (Kyushu University), Hiroshi Maeno (Kyushu University), Masashi Sakamoto (Nippon Steel Corporation), Toshihiko Teshima (Nippon Steel Corporation)
No.89	**Thermally activated process of dislocation glide in Ti-17V and Ti-22V alloys** Rei Yano (Kyushu University), Shigeto Yamasaki (Kyushu University), Tatsuya Morikawa (Kyushu University), Tomohito Tsuru (Japan Atomic Energy Agency), Masaki Tanaka (Kyushu University)
No.91	**Effect of Oxygen Addition on Hardening and Phase Transformation of α" Phase in Ti-Nb Alloy** Tomoya Nakae (Ehime University), Sengo Kobayashi (Ehime University), Satoshi Okano (Ehime University)

Poster session 2 (Poster No. = Even)

Day 3: Wednesday - June 4th

Annex Hall 17:00 - 18:30

No.02	**A Constitutive Model for the Thermal Deformation of the New High-Plasticity TNM Titanium Alloy** Li Qian (Northwest Institute for Non-ferrous Metal Research), Siyuan Zhang (Northwest Institute for Non-ferrous Metal Research), Silan Li (Northwest Institute for Non-ferrous Metal Research)
No.04	**In-situ XRD/DIC measurements of local deformation in A1200 alloys with different grain sizes** Akira Inamura (University of Hyogo), Hiroki Adachi (University of Hyogo)
No.06	**Microstructure regulation and characterization of duplex stainless steel** Jiale Zhang (Shanghai Jiao Tong University), Yumeng Zhang (Shanghai Jiao Tong University), Xunwei Zuo (Shanghai Jiao Tong University), Xiaodong Wang (Shanghai Jiao Tong University), Kolan Madhav Reddy (Shanghai Jiao Tong University)
No.08	**Effect of nitrogen on tensile properties at low temperatures in ferrite and austenite duplex stainless steel** Nagito USUI (Kanazawa University), Norimitsu KOGA (Kanazawa University), Masatomo KAWA (Nippon Steel Stainless Steel Corporation)
No.10	**Hydrogen Embrittlement Behavior of Two API X80 Linepipe Steels under Gaseous and Electrochemical Hydrogen Environments** Dong-Kyu Oh (SEOULTECH), Seung-Hyeok Shin (SEOULTECH), Jaeyoung Park (Korea Research Institute of Standard and Science), Unbong Baek (Korea Research Institute of Standard and Science), Yongjae You (Hyundai steel company), Kyutae Kim (Hyundai steel company), Byoungchul Hwang (SEOULTECH)
No.12	**Mechanical Properties and Microstructural Analysis of 316L/17-4 PH Stainless Steel Manufactured by Laser Powder Bed Fusion (L-PBF)** Jaewoo Kim (Seoul National University), Kyuhyun Kim (Seoul National University), Jungho Shin (Gangneung-Wonju National University), In-Suk Choi (Seoul National University)
No.14	**Carrier-trapping effect on Peierls Potentials of Partial Dislocations in GaP** Oi Shuji (Nagoya University), Sato Takumi (Nagoya University), Ogura Yu (Nagoya University), Yokoi Tatsuya (Nagoya University), Matsunga Katsuyuki (Nagoya University)
No.16	**Exercising a microstructure sensitive superposition law model for simulating the flow stress and work hardening behavior of an Al-Cu-Li alloy** Purnima Bharti (IIT Roorkee), Jyoti Ranjan Sahoo (IIT Roorkee)
No.18	**Effect of Mn and Ti additions on mechanical properties of additive-manufactured Al-Fe alloy** Koki Minamihama (Nagoya University), Takanobu Miyawaki (Nagoya University), Naoki Takata (Nagoya University), Asuka Suzuki (Nagoya University), Makoto Kobashi (Nagoya University)
No.20	**APPERHENDING THE EXTENT OF RECRYSTALIZATION ON THE FLOW STRESS IN AL-MG ALLOY: CONSTITUTIVE MODELLING** Surajit Samanta (Indian Institute of Technology Roorkee)
No.22	**Effect of Chemical Short-range Order on Activation Volume in CrCoNi Medium Entropy Alloy** Hirotaka Yoshida (Kobe university), Katsushi Tanaka (Kobe university)
No.24	**Effect of Grain Size on Work Hardening and Dislocation Density in Aluminum as Observed by EBSD During Tensile Testing** Kenta Matsuda (Chiba Institute of Technology), Daisuke Terada (Chiba Institute of Technology)
No.26	**Void Formation and Growth during Tensile Deformation in DP steel Characterized by Digital Image Correlation Method** Sota Kudo (Tokyo Denki University), Yusuke Onuki (Tokyo Denki University)
No.28	**Fatigue Corrosion life of high-strength steel wires: influence of ions in solution** Jonathan Quibel (Michelin), Veronique Aubin (CentralSupelec), Laure Larippe (Michelin), Nicolas Henri Mary (CNRS INSA Lyon)
No.30	**Three-dimensional Visualization of Dislocations near Grain Boundary in Fe–Si Bicrystals** Kanta Murata (Kyushu University), Yifang Zhao (Kyushu University), Seiichiro Ii (National Institute for Materials Science), Masato Wakeda (National Institute for Materials Science), Takahito Ohmura (National Institute for Materials Science), Satoshi Hata (Kyushu University)
No.32	**Effect of film-cooling holes in creep rupture mechanism by digital image correlation based on high-power laser illumination** Zhanyao Wang (Beihang University), Bin Hu (Beihang University), Yanling Pei (Beihang University), Shusuo Li (Beihang University), Shengkai Gong (Beihang University)
No.34	**Molecular Dynamics Study of the Effects of Temperature and Re Content on Plastic Deformation in Ni-Based Single-Crystal Superalloys** Yifeng Xing (Beihang university), Wenyue Zhao (Beihang University), Yi Ru (Beihang University), Yanling Pei (School of Materials Science and Engineering), Shusuo Li (School of Materials Science and Engineering), Shengkai Gong (School of Materials Science and Engineering)
No.36	**Evaluation of anisotropic deformation behavior and kink strengthening factors in Ti3SiC2 MAX phase ceramics** Eiichi Sei (Hokkaido university), Ken-ichi Ikeda (Hokkaido university), Seiji Miura (Hokkaido university), Koji Morita (National Institute for Materials Science), Tohru Suzuki S. (National Institute for Materials Science), Yoshio Sakka (National Institute for Materials Science)
No.38	**Differences in the deformation mechanism of casting and machined thin-walled specimens during high-temperature creep** Haibo Wang (Beihang University), Shuangqi Zhang (Beihang University), Bin Hu (Beihang University), Yanling Pei (Beihang University), Shusuo Li (Beihang University), Shengkai Gong (Beihang University)
No.40	**Mechanical behavior of additively manufactured pure copper at 4.2K** Kim Young-Kyun (Korea Institute of Materials Science), Youn Seong-June (Korea Institute of Materials Science), Na Young-Sang (Korea Institute of Materials Science)

Poster session 2 (Poster No. = Even)

Day 3: Wednesday - June 4th

Annex Hall 17:00 - 18:30

No.42	**Kinetic Analysis of the Precipitation of Stable β Phase and Metastable β' Phase in Al-Mg Alloys** Takashi Shinozaki (Yokohama National University), Ryo Onodera (Yokohama National University), Mitsuhiro Ootaki (Yokohama National University), Shoichi Hirosawa (Yokohama National University)
No.44	**Effect of composition, severe plastic deformation and annealing on the microstructure evaluation of NiCoCr-based alloy** Krishna Jeevanaboina (IIT Gandhinagar), Dova Kalyan (IISc Bangalore), Anton Hohenwarter (Montanuniversitat), Surendra Makineni (IISc Bangalore), Reinherd Pippan (Erich Schmid institute of materials science), Pradipta Ghosh (IIT Gandhinagar)
No.46	**Effect of Composition Variation on Microstructure and Mechanical Properties of Co(40-x)Cr20Fe20Mn20Ni(x) High-Entropy Alloys** Bikash Tripathy (National Institute of Materials Science Tsukuba Japan), Bikash Tripathy (National Institute of Materials Science), Elango Chandiran (National Institute of Materials Science), Koichi Tsuchiya (National Institute of Materials Science)
No.48	**Effect of Delayed Quenching Process on Microstructure and Mechanical Properties of API X70 Linepipe Steels** Min seop Jeong (Seoul National University of Science and Technology), Dong-Kyu Oh (Seoul National University of Science and Technology), Seung-Hyeok Shin (Seoul National University of Science and Technology), Myeong-Gyu Seo (Hyundai Steel Company), Kyutae Kim (Hyundai Steel Company), Byoungchul Hwang (Seoul National University of Science and Technology)
No.50	**Study on Mechanical Behavior and Microstructure Evolution of Al-Cu-Li Alloy in Electrically-Assisted Plane Strain Compression** Zhenhai Xu (Harbin Institute of Technology), Shaoxi Xue (Harbin Institute of Technology), Debin Shan (Harbin Institute of Technology), Bin Guo (Harbin Institute of Technology)
No.52	**Effects of α/β fraction and trace elements on microstructure and mechanical properties of Mg-Li alloy system with dual phases** Hyeon-Taek Son (Korea Institute of Industrial Technology), Yong-Ho Kim (Korea Institute of Industrial Technology), Hyo-Sang Yoo (Korea Institute of Industrial Technology), Byeong-Kwon Lee (Korea Institute of Industrial Technology), En-Chan Go (Korea Institute of Industrial Technology)
No.54	**Tuning mechanical properties of electrochemically modified aluminum alloy A356** Alexandra Musza (Bay Zoltán Nonprofit Ltd. for Applied Research), Dávid Ugi (Eötvös University), Márk Schmitzhofer (Bay Zoltán Nonprofit Ltd. for Applied Research), Quang Chinh Nguyen (Eötvös University), Ádám Vida (Bay Zoltán Nonprofit Ltd. for Applied Research)
No.56	**A Multi-scale Study of Synergistic Influence of Texture and Grain Size Gradients on the Plastic Deformation in Polycrystalline Aluminum** Hao Lyu (Dalian Maritime Univeristy), Xueting Si (Dalian Maritime Univeristy), Chengcheng Ruan (Dalian Maritime Univeristy)
No.58	**Microstructural Observation of Al-Zn-Mg Alloys (Zn/Mg = 0.40 & 2.5)** Wanlalak Sanphiboon (University of Toyama), Taiki Tsuchiya (University of Toyama), Seungwon Lee (University of Toyama), Satoshi Murakami (University of Toyama), Susumu Ikeno (University of Toyama), Karin Shibata (AISIN KEIKINZOKU Co., LTD), Hiroaki Matsui (AISIN KEIKINZOKU Co., LTD), Tomoo Yoshida (AISIN KEIKINZOKU Co., LTD), Kenji Matsuda (University of Toyama)
No.60	**3D Microstructure Generation with Controlled Morphological Features of Dual-Phase Steel Using SliceGAN with Adaptive Instance Normalization** Toshiki Sakakibara (Nagoya University), Ta-Te Chen (Nagoya University), Fei Sun (Nagoya University), Yoshitaka Adachi (Nagoya University)
No.62	**A novel cost-effective hetero-structured Fe-based medium-entropy alloy with high strength and ductility** Yongfu Cai (Zhengzhou University), Hongyan Wang (Zhengzhou University of Aeronautics), Chen Chen (Zhengzhou University), Shaojie Wu (Zhengzhou University), Tan Wang (Zhengzhou University), Ran Wei (Zhengzhou University)
No.64	**Chemical ordering induced interstitial and vacancy sluggish diffusion in CrCoNi medium-entropy alloy** Yangen Li (Osaka University), Jun-Ping Du (Osaka University), Shuhei Shinzato (Osaka University), Shigenobu Ogata (Osaka University)
No.66	**Temperature Dependence of Electrical Resistivity in CrCoNi Medium Entropy Alloys** Shungo Hosokawa (Kobe University), Ryouga Shimizu (Kobe University), Katsushi Tanaka (Kobe University)
No.68	**Micropillar Compression Simulation based on Field Theory of Multiscale Plasticity (FTMP)** Yangeng Li (Kobe University), Tadashi Hasebe (Kobe University), Teppei Sirotani (Ltd.)
No.70	**Study of Bauschinger Effect in Simple Shear Deformation of Polycrystalline Steel Based on Field Theory of Multiscale Plasticity (FTMP)** Hakuto Ueda (Kobe University), Tadashi Hasebe (Kobe University)
No.72	**FTMP-based-Simulation of Kink Formation and strengthening** Toki Kuroe (Kobe University), Miu Arimitsu (Fujitsu Ltd.), Tadashi Hasebe (Kobe University)
No.74	**FTMP-based Modeling and Simulations on Bauschinger Effect for Harmonic Structure Materials** Daisuke Nakajima (Kobe University), Tadashi Hasebe (Kobe University)
No.76	**Multi-scale Modeling of Polycrystal Turbine Disk and Single Crystal Turbine Blade with Orientation Deviations Under Cyclic Operational Loading** Sadik S. Acar (Middle East Technical University), Orhun Bulut (Middle East Technical University), Tuncay Yalçinkaya (Middle East Technical University)

Poster session 2 (Poster No. = Even)

Day 3: Wednesday - June 4th

Annex Hall 17:00 - 18:30

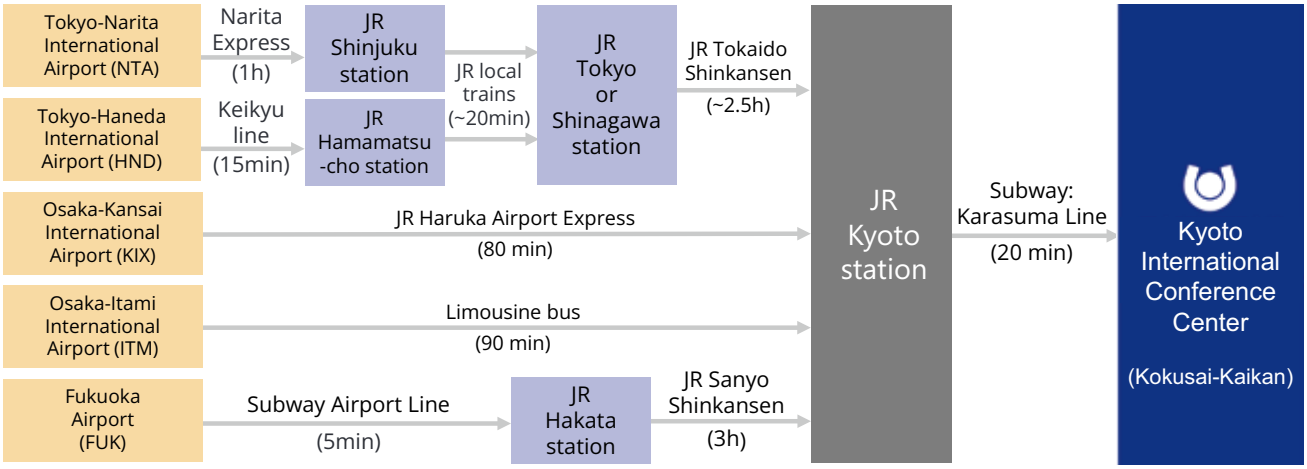
No.78	**Initiation and Propagation of Microscopic Damage during Ultra-fast Collision of 3C-SiC Crystals: A Molecular Dynamics Study** Ryoya Yamaguchi (Kansai University), Ken-ichi Saitoh (Kansai University), Kenji Nishimura (National Institute of Advanced Industrial Science and Technology), Masanori Takuma (Kansai University), Yoshimasa Takahashi (Kansai University), Tomohiro Sato (Kansai University)
No.80	**Micro-mechanical characterization of hydrogen enhanced ductility loss of precipitation-hardened austenitic steel** Shogo Momono (Kumamoto University), Kwangsik Kwak (Kumamoto University), Yoji Mine (Kumamoto University), Katsuhiko Oishi (Proterial, Ltd.)
No.82	**A Study of the Irradiation Hardening Mechanism of Model Reactor Pressure Vessel Steel Using Pop-in Phenomena** Yuuki Maeda (Institute of Nuclear Safety System), Katsuhiko Fujii (Institute of Nuclear Safety System), Koji Fukuya (Institute of Nuclear Saft)
No.84	**Effect of aging treat treatment on precipitation behavior in a nitrogen-added austenitic stainless** Hiroki Harako (Kyushu University), Yasuhito Kawahara (Kyushu University)
No.86	**Microstructural and Mechanical Property Changes in Al-Zn-Mg-Cu Alloy with Non-metallic Elements due to Precipitate Behavior upon CNT and SiC Addition** Hyun woo Park (Sunchon National University), Donghyun Bae (Yonsei National University), Se-eun Shin (Sunchon National University)
No.88	**Effect of heat treatment on microstructures and mechanical properties of Al-8Si-0.25Mg-xCu alloys** Youngok Yoon (KITECH(Korea Institute of Industrial Technology)), Namseok Kim (KITECH(Korea Institute of Industrial Technology)), Seonyeong Park (KITECH(Korea Institute of Industrial Technology)), Seongho Ha (KITECH(Korea Institute of Industrial Technology)), Bonghwan Kim (KITECH(Korea Institute of Industrial Technology)), Hyunkyu Lim (KITECH(Korea Institute of Industrial Technology)), Shae K. Kim (KITECH(Korea Institute of Industrial Technology))
No.90	**Enhancement of mechanical properties in the extruded Aluminum alloys by addition of Mg element** HyoSang Yoo (Korea Institute of Industrial Technology), YongHo Kim (Korea Institute of Industrial Technology), ByeongKwon Lee (Korea Institute of Industrial Technology), EunChan Ko (Korea Institute of Industrial Technology), CheolWoo Kim (Korea Institute of Industrial Technology), HyeonTaek Son (Korea Institute of Industrial Technology)
No.92	**Effect of heat treatments on inhomogeneous deformation in additive-manufactured Al-Fe-Cu alloy** Yue Cheng (Nagoya University), Yuki Otani (Nagoya University), Naoki Takata (Nagoya University), Asuka Suzuki (Nagoya University), Makoto Kobashi (Nagoya University), Masaki Kato (Aichi Center for Industry and Science Technology)
No.94	**Tension-compression asymmetry, and texture evolution in additively manufactured Inconel 718 at room and elevated temperatures** Akshay Kumar Chaturvedi (Indian Institute of Technology Madras), Sumit Katiyar (Indian Institute of Technology Madras), Shreshtha Ranjan (Indian Institute of Science), Satyam Suwas (Indian Institute of Science), Sankaran Shanmugam (Indian Institute of Technology Madras), Murugaiyan Amirthalingam (Indian Institute of Technology Madras)

Venue Information

Conference venue

Kyoto International Conference Center
(URL: https://www.icckyoto.or.jp/en/)
422 Iwakura Osagicho, Sakyo Ward,
Kyoto, Japan 606-0001

Access to the conference venue



The venue is 5-minute walk from Kokusaikaikan Station on the Karasuma Subway Line. Please exit the ticket gate and walk through the underground passage to Exit 4-2. The covered walkway from Exit 4-2 will guide you to the front entrance.

It is also 5-minute walk from **Kokusaikaikan-eki-mae bus stop on Kyoto City Bus and Kyoto Bus.**

Floor map

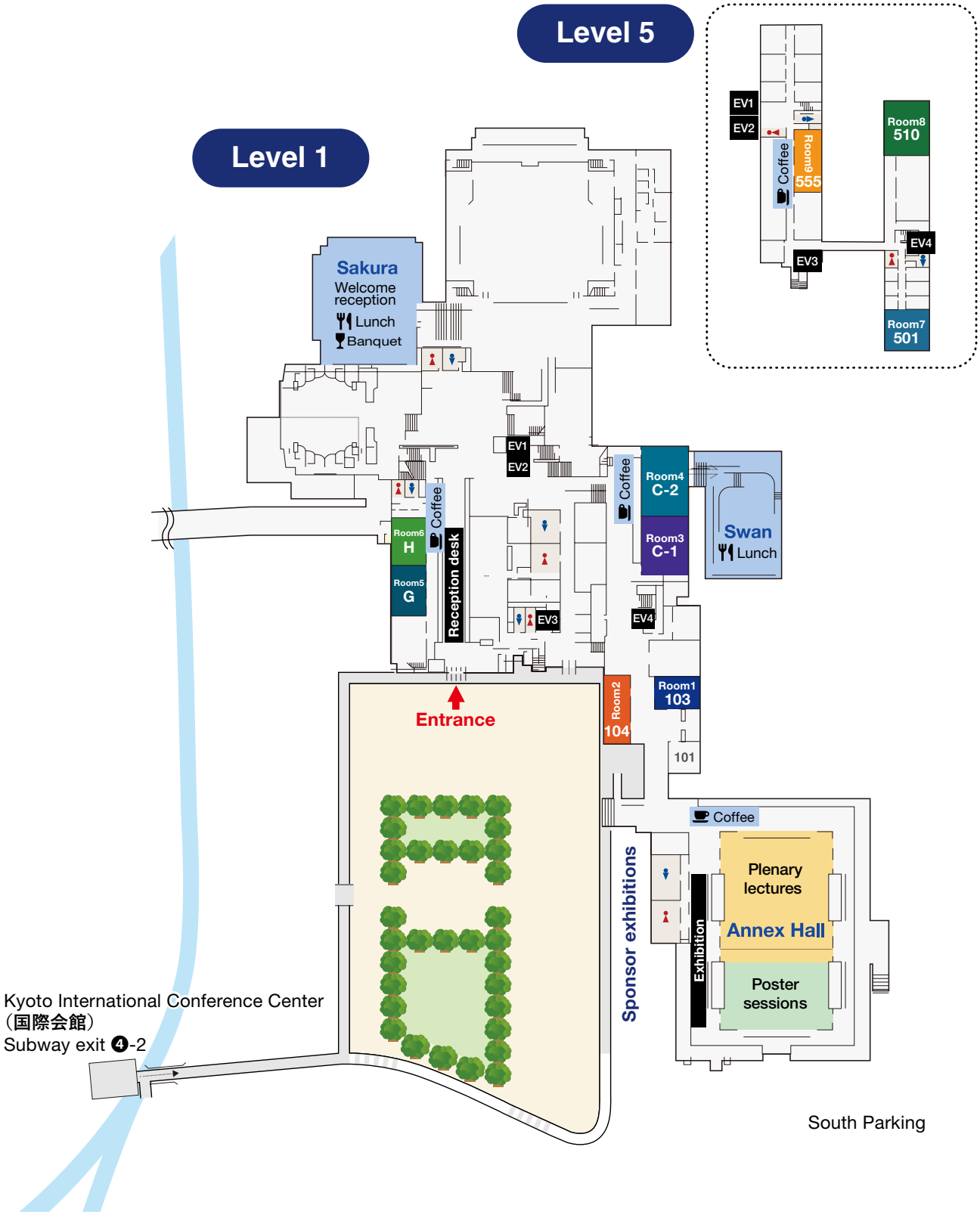
Welcome reception, Banquet: Sakura

Plenary lectures, Poster sessions, Sponsor exhibitions: Annex Hall

Oral sessions: 103, 104, C-1, C-2, G, H, 501, 510, 555

Lunch: Sakura, Swan

Coffee and snacks: in front of Annex Hall, Rooms C-2, H, and 555



General Information for Participants

Reception desk

When you come to the conference venue for the first time, please visit our reception desk at the main entrance of the conference center and get your name tag and conference bag containing program books and some souvenirs. The reception desk is open during the following periods
June 2nd: 15:00 – 19:00
June 3rd - 6th: 8:30 – 17:30

Coffee break

During coffee break, coffee, tea and some snacks (originated from Kyoto) are provided with free of extra charge in front of Annex Hall, Rooms C-2, H, and 555. Please enjoy the time.

Lunch

Lunch (Buffet style) is provided in the conference venue from June 3rd to 6th with free of extra charge. Lunch is available from 11:40-13:00 on June 3rd and 12:20-13:40 on June 4-6th in Sakura and Swan both in 1F. In both rooms, the same menu is available. If you have food restrictions such as vegetarians, please refer to the indications near the dishes to know what is in them.

Banquet and closing

We have a banquet and closing on the night (from 17:30-19:30) of June 6th. The participants of the banquet must be those who selected the banquet option in registration prior to the conference; otherwise, you are not allowed to join the banquet. During the banquet, the venue of ICSMA 21 (next conference) will be introduced.

Prayer room

Prayer rooms are available upon request. Please notify to the staff at the reception desk if you need it.

Exploring Kyoto

ICSMA20 does not plan official excursions in the conference. For participants interested in exploring unique cultural heritage and experiences in Kyoto, some resources listed in the following webpage may help you planning memorable activities during your stay.
https://www.icsma20.com/travelInformation.html#exploringKyoto

Guidelines for Participants and Presenters

ICSMA20 sessions will be conducted in English to ensure clear communication among all participants. To protect the work and rights of presenters, the conference maintains a strict policy against any form of photography or video recording during both oral and poster sessions. (Please note that the conference staff may take some photos (without presentation materials) for public relation purposes.)

Oral Presentations

The total time for oral presentations is limited as:

- General presentations: 15 minutes including questions and discussion
- Invited talks: 20 minutes including questions and discussion
- Plenary lectures: 50 minutes including questions and discussion.

Presenters need to bring their own laptops with HDMI or RGB (VGA) connections; laser pointers for share will be provided in each room. The aspect ratio of presentation slides is ideally 4:3 for optimal display. It is recommended to arrive early to test any equipment and ensure everything functions properly before your session starts.

Poster Presentations

Poster presentations are divided according to poster numbers:

- Posters with odd numbers: on June 3 at 16:30-18:00
- Posters with even numbers: on June 4 at 17:00-18:30

All poster sessions take place in the Annex Hall.

The recommended poster size is A0 in portrait orientation. (must be smaller than w841mm × h1189mm)
Pins for mounting will be provided, and participants are requested to hang their posters in the morning of June 3 and remove them by June 5. Any remaining posters after 5:00 PM on June 5 will be disposed of by the conference staff.
Student and young postdoc presenters in the poster sessions are automatically considered as the candidates for the poster awards. The winners will be announced during the conference.

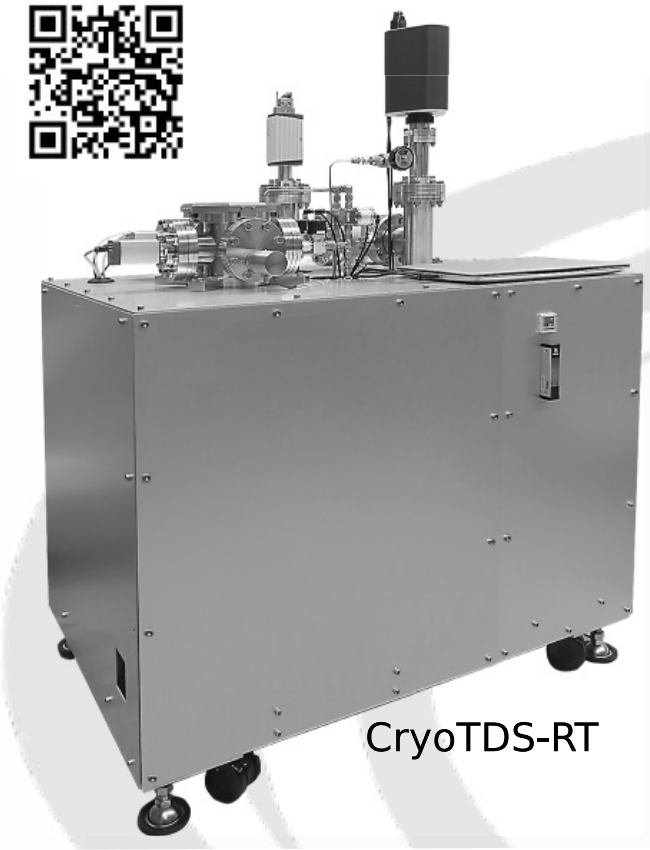
Presenters who have special technical requirements or questions are encouraged to contact the organizers in advance (info@icsma20.com).

Memo

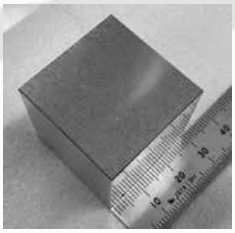
Memo

Thermal desorption Hydrogen Analyzer
（Diffusible Hydrogen Analyzer in Steel）
CryoTDS series

NEW

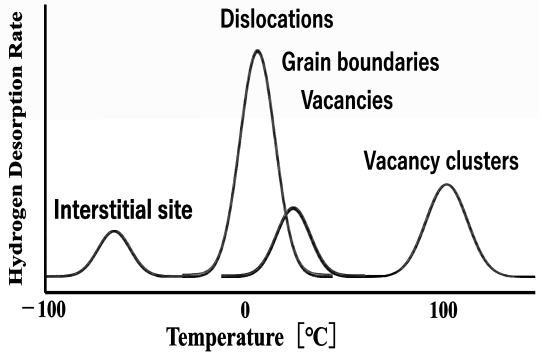


Compatible with large samples
The analyzer can accommodate samples up to 30 x 30 x 30 mm. This sample size is among the largest for a thermal desorption hydrogen analyzer, accommodating a wide variety of samples, providing analytical flexibility.



Low temperature measurement
The low-temperature measurement function will enable the separation and detection of hydrogen trapped in iron lattice defects by allowing measurements from -100°C.
This function represents a pioneering capability in this field, ultimately improving the precision of diffusible hydrogen assessment in materials like steel.
Model：CryoTDS-100H2 [under development]

Image TDS profile of hydrogen trapped in lattice defects of pure iron



Easy measurement operation
Unlike typical UHV systems, the CryoTDS requires no sample transfer. Measurement can be started simply by placing the sample on the quartz stage, closing the lid, and pressing the start button. Its intuitive design ensures ease of use for operators of all experience levels.

High-Speed Detection
The analyzer boasts a 1 Hz detection speed, up to 300x faster than conventional methods (5min/detection). This rapid analysis cycle enables up to four measurement per day.

Ultra-Low Detection Limits
The analyzer enables detection of hydrogen in the ppb (ng/g) or lower range utilizing its ultra - high vacuum technology, high sensitivity mass spectrometer, and large sample capacity.

ESCO 電子科学株式会社
Manufactured by ESCO, Ltd., Tokyo, Japan

JTEC CORPORATION GROUP

https://www.escoltd.co.jp/

Sponsors

Thank you for your support!!

ESCO

Dynamic systems, Inc.

AMETEK

Moritani & Co., Ltd.

MAKABE R&D Co., LTD

Huawei Technologies Japan K.K.
Liaoning Academy of Materials

Exhibitions of the following sponsor companies are available in front of Annex Hall. Please visit them!

(1) ESCO
(2) Dynamic systems, Inc.
(3) AMETEK
(4) Moritani & Co., Ltd.
(5) MAKABE R&D Co., LTD
(6) Liaoning Academy of Materials

SUPPORTED by

This conference is supported by Japan Institute of Metals and Materials (JIMM) as JIMIC-9.