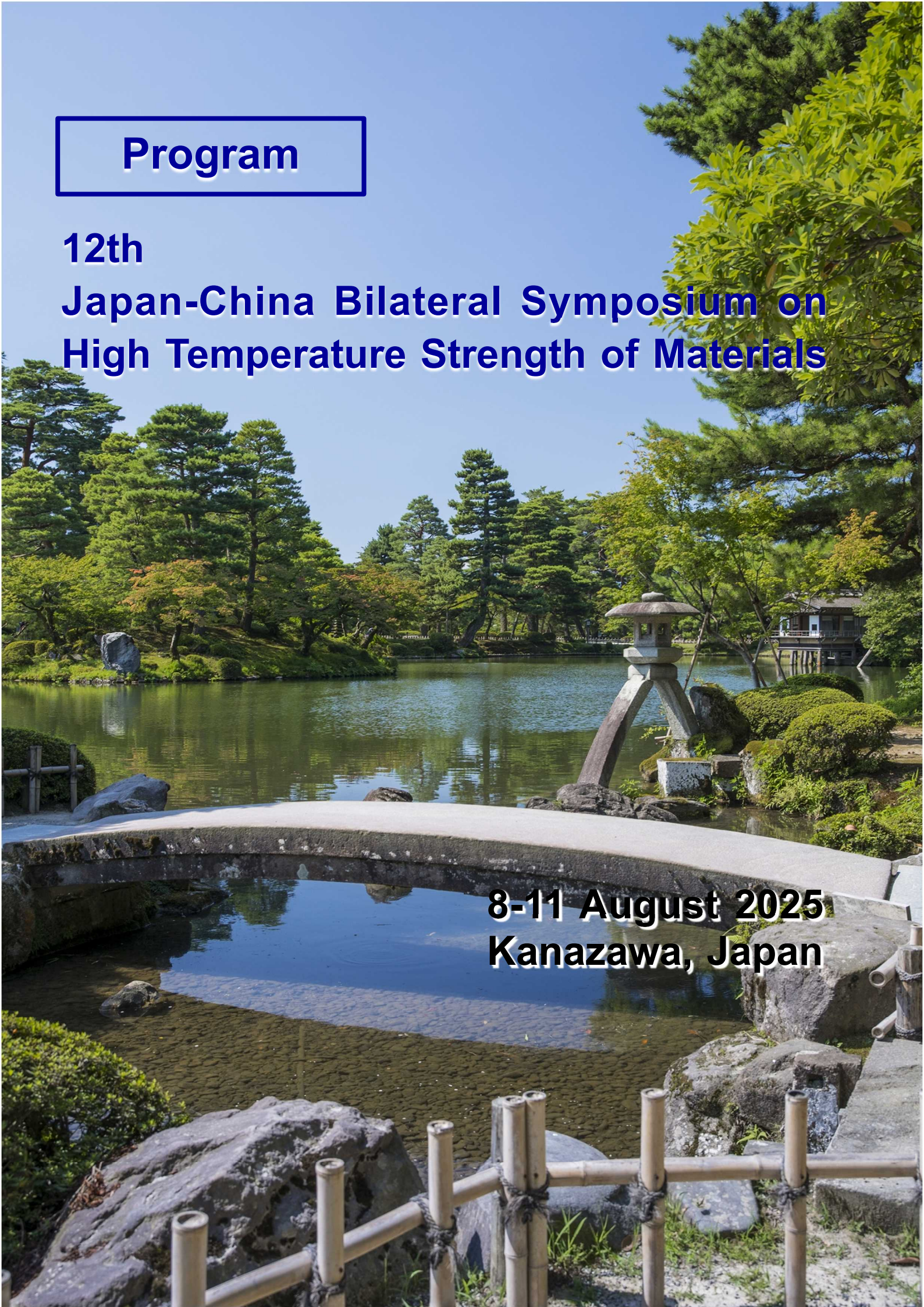
Program

12th Japan-China Bilateral Symposium on High Temperature Strength of Materials



8-11 August 2025
Kanazawa, Japan

12th
Japan-China Bilateral Symposium on High Temperature Strength of Materials

8-11 August 2025

Kanazawa, Japan

Sponsored by

The Committee on High Temperature Strength of Materials,
The Society of Materials Science, Japan

The High Temperature Strength and Materials Committee,
Materials Institution, Chinese Mechanical Engineering Society

Supported by

The Japan Society of Mechanical Engineers

■Objective

The 12th Japan-China Bilateral Symposium on High Temperature Strength of Materials will be held at Kanazawa, Japan during 8-11 August 2025.
The symposium series was initiated by the High Temperature Strength and Materials Committee, Materials Institution, Chinese Mechanical Engineering Society and the Committee on High Temperature Strength of Materials, the Society of Materials Science Japan.
This Symposium is a sequel to the successful meetings of the 1st Japan-China Bilateral Symposium held in **Luoyang**, China,1992; the 2nd bilateral Symposium held in **Nagaoka**, Japan, 1995; the 3rd held in **Nanjing**, China,1998; 4th held in **Tsukuba**, Japan, 2001; 5th held in **Xi'an**, China, 2004; 6th held in **Sendai**, Japan, 2007; 7th held in **Dalian**, China, 2010; 8th held in **Asahikawa**, Japan, 2013; 9th held in **Changsha**, China, 2016; 10th held in **Kagoshima**, Japan, 2019; 11th held in **Chengdu**, China, 2023.
The purpose is intended to promote academic and technical exchange between Japanese and Chinese scientists, engineers and to strengthen the technical contacts in the field of high temperature strength of materials between the two nearby countries.

■Scope

The organizer invites offers of papers on topics which contribute towards providing improvements in the understanding of the high temperature strength of materials and structures. A non-exclusive listing of relevant topics includes:

- ■ High Temperature Deformation and Fracture Mechanisms.
- ■ Behavior of Superalloys at High Temperature.
- ■ Microstructural Study of Heat-Resistant Materials.
- ■ Superalloys and Composites for High Temperature Use.
- ■ Deformation and Fracture of Advanced High Temperature Materials Including Intermetallics, Ceramics and Composites etc.
- ■ Creep and Fatigue at High Temperatures.
- ■ Creep and Fatigue Interaction.
- ■ High Temperature Damage Analysis and Design Control.
- ■ Defect Assessment and Life Prediction of High Temperature Materials and components.
- ■ Life Extension of High Temperature Components and Plants.

■Committee

Symposium Chairmen

Prof. Shin-ichi Komazaki, Kagoshima University (Japan)
Prof. Xu Chen, Tianjin University (China)

Advisory Board

Prof. Masao Sakane, Ritsumeikan University
Prof. Masakazu Okazaki, Niigata Institute of Technology
Prof. Isamu Nonaka, Tohoku University
Prof. Yukio Takahashi, Tokyo University of Science
Dr. Toshihide Igari, Mitsubishi Heavy Industries, Ltd.
Dr. Akito Nitta, Kobe Material Testing Laboratory, Co., Ltd.
Dr. Yoshiatsu Sawaragi, Nippon Steel & Sumikin Technology Co., Ltd.
Dr. Masaaki Tabuchi, National Institute for Material Science, Japan
Prof. Takamoto Itoh, Ritsumeikan University
Prof. Yasuhiro Yamazaki, Chiba University
Prof. Toshihiro Ohtani, Shonan Institute of Technology
Prof. Shan-Tung Tu, East China University of Science and Technology
Prof. Jie Zhao, Dalian University of Technology
Prof. Zhengdong Wang, East China University of Science and Technology
Prof. Xiaoguang Yang, Beihang University
Prof. Jian Chen, Changsha University of Science & Technology
Prof. Huiji Shi, Tsinghua University
Prof. Jianming Gong, Nanjing Tech University
Prof. Guozheng Kang, Southwest Jiaotong University

Technical Program Committee

Chairmen

Prof. Fumiko Kawashima, Kumamoto University (Japan)
Prof. Jianfeng Wen, East China University of Science and Technology (China)

Members from Japanese side:

Dr. Takuya Fukahori, Mitsubishi Heavy Industries, Ltd.
Dr. Nobuhiro Isobe, Mitsubishi Heavy Industries, Ltd.
Dr. Daisuke Kobayashi, Chubu Electric Power Co., Inc.
Prof. Shoji Imatani, Kyoto University
Prof. Kazuhiro Ogawa, Tohoku University
Dr. Takanori Karato, Mitsubishi Heavy Industries, Ltd.
Prof. Hiroki Saito, Tohoku University
Prof. Motoki Sakaguchi, Institute of Science Tokyo
Dr. Kota Sawada, National Institute for Materials Science
Dr. Haruhisa Shigeyama, Central Research Institute of Electric Power Industry
Prof. Ryuji Sugiura, Nihon University
Dr. Yusuke Suzuki, Toshiba Energy Systems & Solution Corporation
Prof. Naoya Tada, Okayama University
Dr. Shengde Zhang, Central Research Institute of Electric Power Industry
Dr. Yasutaka Noguchi, Nippon Steel Corporation
Prof. Noritake Hiyoshi, University of Fukui
Dr. Toshiki Mitsueda, Hokkaido Electric Power Co., Inc.
Dr. Kenji Tokuda, IHI Corporation
Prof. Satoshi Yamagishi, National Institute of Technology, Nagaoka College
Prof. Hiroyuki Waki, Iwate University

Members from Chinese side:

Prof. Huichen Yu, Beijing Institute of Aeronautical Materials
Dr. Yanfeng Wang, Shanghai Power equipment research institute Co.,Ltd
Prof. Xiancheng Zhang, East China University of Science and Technology
Prof. Lixun Cai, Southwestern Jiao Tong University
Prof. Zengliang Gao, Zhejiang University of Technology
Prof. Tao Chen, Hefei General Machinery Research Institute
Prof. Ke Wang, Zhengzhou University
Prof. Chengyu Zhang, Northwestern Polytechnical University
Prof. Duoqi Shi, Beihang University
Prof. Sugui Tian, Shenyang University of Technology
Prof. Wenchun Jiang, China University of Petroleum (East China)
Prof. Lanting Zhang, Shanghai Jiaotong University
Dr. Binsheng Zhou, Shanghai Special Equipment Inspection and Research Institute
Dr. Rongcan Zhou, Xi'an Thermal Power Research Institute Co., Ltd
Prof. Xianfeng Ma, Sun Yat-sen University
Prof. Liguo Zhao, Nanjing University of Aeronautics and Astronautics
Prof. Xiaowei Wang, Nanjing Tech University
Prof. Shouwen Shi, Tianjin University

Local Organizer

Prof. Noritake Hiyoshi, University of Fukui
Dr. Shengde Zhang, Central Research Institute of Electric Power Industry

■Venue

Conference

Kanazawa Chamber of Commerce and Industry
9-13 Oyama, Kanazawa-shi, Ishikawa, 920-8639 Japan
https://www.kanazawa-cci.or.jp/rooms/index.html (in Japanese)

Welcome Reception (Aug. 8)

サカナヤサケ (IZAKAYA, Japanese style pub)
https://www.sakanayasake.com/ (in Japanese)
Meet at the restaurant: 18:00

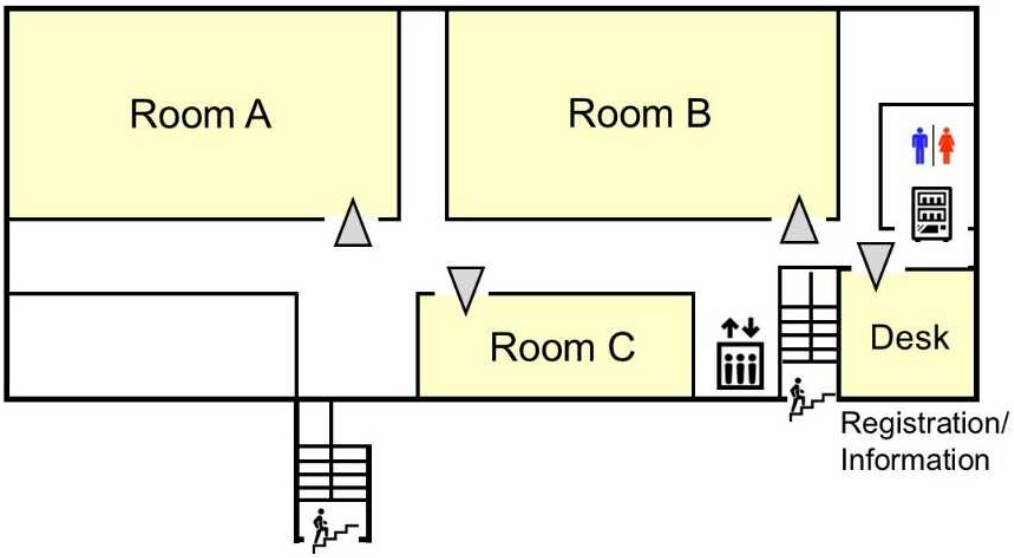
Banquet (Aug. 9) & Dinner (Aug. 10)

Kanazawa New Grand Hotel
https://www.new-grand.co.jp/en_top
Meet at the hall (4th floor "Kinsen"): 18:00

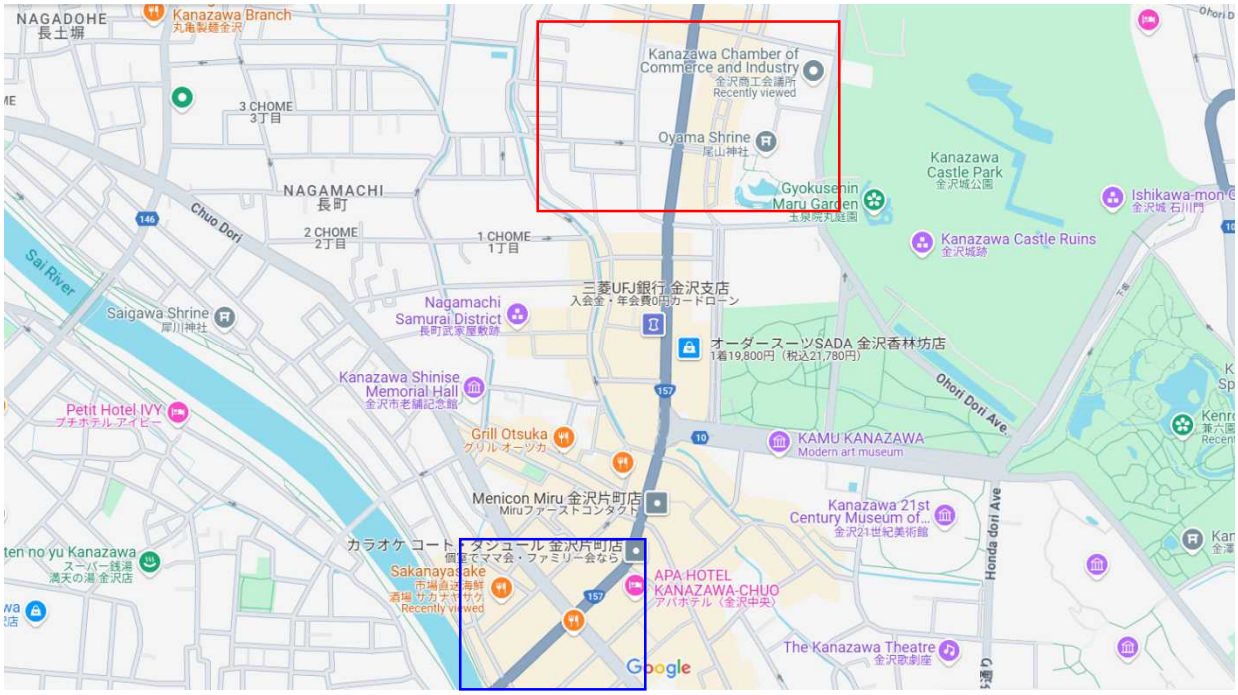
Dinner (Aug. 11)

Dining Bar JIM HALL
https://www.jimhall.jp/index.html (in Japanese)
Meet at the restaurant: 18:00

■2nd floor of Kanazawa Chamber of Commerce and Industry

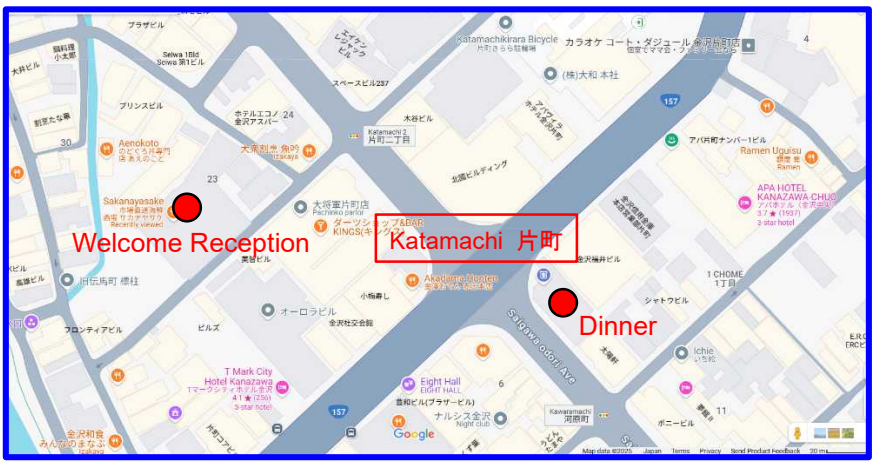


Central Kanazawa



Conference／Banquet (Aug. 9) & Dinner (Aug. 10)

Welcome Reception (Aug. 8) & Dinner (Aug. 11)



■Time Table

Aug. 8 Fri.　　Registration 14:00 - 16:30

Aug. 9 Sat.

Room A	Room B	Room C
Registration 8:45-		
Opening ceremony 9:00		
A1 (9:45-10:45)		C1 (9:45-10:45)
A2 (11:00-12:15)	Poster	C2 (11:00-12:15)
Lunch (12:15-13:00)		
A3 (13:00-14:30)	Poster	C3 (13:00-14:30)
	Poster session (14:40-16:20)	
Banquet (18:00-20:00) Kanazawa New Grand Hotel		

Aug. 10 Sun.

Room A	Room B	Room C
Registration 8:45-		
A4 (9:00-10:30)	B1 (9:00-10:30)	(Break room)
A5 (10:45-12:30)	B2 (10:45-12:15)	
Lunch (12:30-13:10)		
A6 (13:10-14:40)	B3 (13:10-14:40)	(Break room)
A7 (14:55-15:55)	B4 (14:55-16:10)	
Closing ceremony 16:20		
Dinner (18:00-20:00) Kanazawa New Grand Hotel		

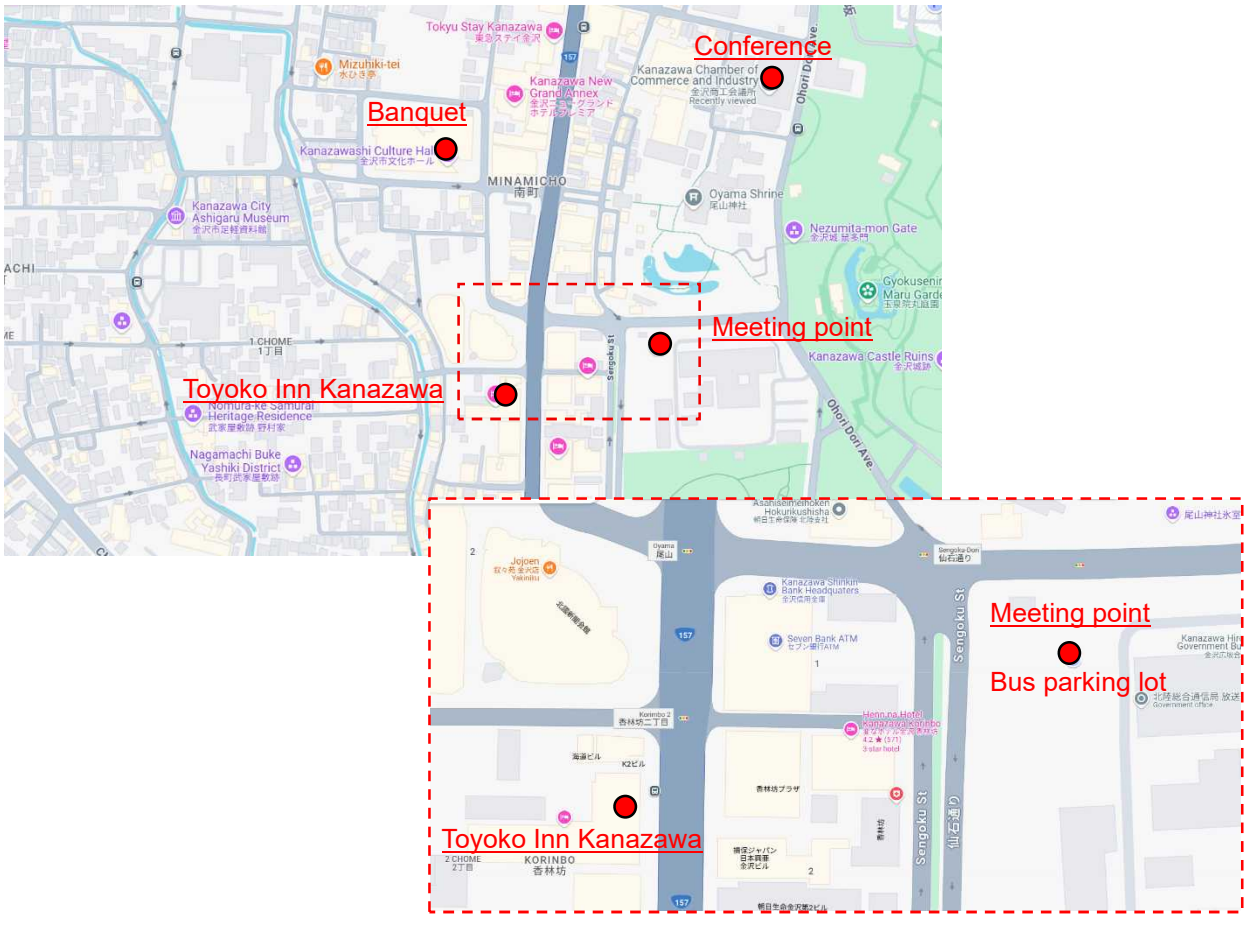
Information

—Lunch will be served in a lunchbox. Please have your lunch indoors, staying away from public areas.
—Poster presenters must display your poster in the designated space (W900 mm x H2100 mm) in the morning. Tapes for display will be provided.

■Technical Tour

Aug. 11 Mon.

9:00	Departure from Hotel (The meeting point is shown on the map below.)
9:20-10:10	Kanazawa Castle Park, 金沢城公園散策 https://www.pref.ishikawa.jp/siro-niwa/kanazawajou/e/
10:20-11:10	Kenrokuen Garden, 兼六園散策 https://www.pref.ishikawa.jp/siro-niwa/kenrokuen/e/index.html
11:30-12:30	Lunch at Kikantei, 寄観亭 http://kikantei.jp/
13:20-14:10	Higashi Chaya District, ひがし茶屋街散策 https://chayagai.goldleaf-sakuda.jp/en/
15:00-16:30	Gold Leaf Experience, 金箔体験 https://enkanazawa.hakuichi.co.jp/
17:00	Return to the hotel
18:00	Dinner at Dining Bar JIM HALL https://www.jimhall.jp/index.html (in Japanese)



Room A

Aug. 9 Sat.

9:00-9:30

Opening Ceremony

Chair: Prof. Fumiko Kawashima (Kumamoto University, Japan)

Opening address and welcome speech

Prof. Shin-ichi Komazaki (Chair of the Japan committee, Kagoshima University)

Speech

Prof. Xu Chen (Chair of the China committee, Tianjin University)

Group photo

Underlines indicate award candidates

9:45-10:45

Session A1 Fatigue and Fracture I

Chair: Prof. Motoki Sakaguchi (Institute of Science Tokyo, Japan)

Temperature-dependent Damage of Magnesium Alloy with Ratchetting-fatigue Interaction Effects: Experiments and Mesomechanical Theory

Ziyi Wang, Xiqiao Feng, Guozheng Kang (Tsinghua University, China)

Analysis of Small Fatigue Crack Growth Behavior via a New Modelling of Crack Closure in Single Crystal Ni-Base Superalloys at High Temperatures

M. Takizawa, K. Hasegawa, M. Okazaki (Niigata Institute of Technology, Japan)

Coupled Thickness Debit and Secondary Orientation Effects on Tensile and Fatigue Strengths of DD6 Ni-based Single Crystal Superalloys at 760°C

Shao-Shi Rui, Hui-Ji Shi, Chengqi Sun (Institute of Mechanics, Chinese Academy of Sciences, China)

Thickness Effects on Low-Cycle Fatigue Behavior of a Nickel-Based Single-Crystal Superalloy at High Temperature

Yue Zhang, Wei Xu, Huichen Yu, Yuhuai He, Huang Yuan (Beijing Institute of Aeronautical Materials, China)

11:00-12:15

Session A2 Fatigue and Fracture II

Chair: Prof. Jianfeng Wen (East China University of Science and Technology, China)

Fatigue Strength Assessment of Epoxy Resin by Pneumatic Drive Small Disk Bending Fatigue Test

Masanori Tsuruzono, Shin-ichi Komazaki, Masayuki Kamaya, Chiaki Hisaka, Akito Nitta (Kagoshima University, Japan)

Rate-dependent Anisotropic Thermomechanical Fatigue in a Nickel-base Single Crystal Superalloy

Cheng Luo, Huanbo Weng, Jiawei Xu, Huang Yuan (Tsinghua University, China)

Fatigue Properties of $Ni_2Al_{1.8}CrCuFe$ high-entropy Alloy Evaluated by Enhanced Alternate Piezo Actuator Fatigue Testing Machine at High Temperature

Rin Iwashita, Taiki Yamamoto, Kousuke Katayama, Lei He, Mie Kawabata, Hiroshi Fujiwara, Takamoto Itoh (Ritsumeikan University, Japan)

Influence of Non-Metallic Inclusions on Low-Cycle Fatigue Performance of FGH4720Li Superalloy via Crystal Plasticity Finite Element Method

Hongying Wang, Zhihao Yao, Jianxin Dong, Changjie Zhao, Kai Liang, Longyao Zhang (University of Science and Technology Beijing, China)

Fatigue Life Prediction of Nickel-Based Single Crystal Superalloy with Film Cooling Holes from Room Temperature to High Temperature Considering Initial Manufacturing Damage

Fei Li, Lei Luo, Zhixun Wen, Zhufeng Yue (Harbin Institute of Technology, China)

13:00-14:30
Session A3 Multiaxial Loading
Chair: Dr. Shengde Zhang (Central Research Institute of Electric Power Industry, Japan)

Low Cycle Fatigue Behavior and Life Evaluation of Duplex Stainless Steel under Multiaxial Non-proportional Loading
Yu-Chen Wang, Le Xu, Lei He, Shan-Tung Tu, Takamoto Itoh (Ritsumeikan University, Japan)

High Cycle Fatigue of AISI 304 under Multiaxial Non-proportional Loading
Gaurav Raj, Kohei Suzuki, Lei He, Takamoto Itoh (Ritsumeikan University, Japan)

Multiaxial Low-cycle Fatigue Performance of 316H Stainless Steel Base Material and Welded Joints at 650°C
Jingyu Yang, **Bingbing Li**, Yan Li, Xu Chen (Tianjin University, China)

Investigation of Fatigue Properties of Stainless Steels SUS316 and SUS430 under Multiaxial Inner Pressure Combined with Push-pull Loading
Atharva Kajale, Yu-Chen Wang, Lei He, Takamoto Itoh (Ritsumeikan University, Japan)

Creep Damage Evaluation of SUS 304 Stainless Steel under Multiaxial Loading
Tushar Aditya, Shunki Hasegawa, Terumasa Maekawa, Noritake Hiyoshi, Lei He, Takamoto Itoh (Ritsumeikan University, Japan)

Multiaxial Creep Damage and a Rupture Criterion for Type 304 Stainless Steel
Shengde Zhang, Masao Sakane (Central Research Institute of Electric Power Industry, Japan)

Aug. 10 Sun.

9:00-10:30
Session A4 Modeling and Prediction I
Chair: Prof. Xiaogang Wang (Hunan University, China)

Advanced Life Design Methodology Driven by Damage Physics Principle
Run-Zi Wang (Tohoku University, Japan)

Mixed-Mode Fracture Partition Theory for an Edge-Cracked Circular Beam
Yi Li, Bo Yuan, Christopher M. Harvey, Xiaofeng Guo, Simon S. Wang (Inner Mongolia University of Science and Technology, China)

Intelligent Constitutive Model for Rafted Nickel-base Single Crystal Superalloys Considering Microstructural Features
Huanbo Weng, Huang Yuan (Tsinghua University, China)

Unique High Temperature Deformation Behavior of Hetero Structure Designed SUS316L Compacts
Seitaro Suzuki, Mie Kawabata, Hiroshi Fujiwara, Kei Ameyama (Ritsumeikan University, Japan)

A New Constitutive Equation Based on Nonequilibrium Statistical Mechanics to Predict Creep Lifetime of Alloys
Bo-Yuan Ning (Shanghai Institute of Applied Physics, Chinese Academy of Science, China)

A Data-driven Framework Bridging Microstructural Images to Crystal Plasticity for Dual-phase Single Crystal Alloys
Yongsheng Fan, Xiaoguang Yang, Long Tan, Duoqi Shi (Beihang University, China)

10:45-12:30
Session A5 Modeling and Prediction II
Chair: Prof. Hiroyuki Waki (Iwate University, Japan)

Effect of Deposition Temperature on the Stress Relaxation Property of Suspension Plasma Sprayed Thermal Barrier Coatings Evaluated by Flexural Resonance Method under Thermal Stress
Tatsuya Tateno, Hiroyuki Waki, Kaito Takagi, Yoichiro Habu, Tatsuo Suidzu (Iwate University, Japan)

A Novel Machine Learning-Based Virtual Sensors for Real-Time Creep-Fatigue Damage Monitoring of Turbine Disks
Yuxin Jiang, Xiaowei Wang, Zitong Kang, Guanhong Chen, Jianming Gong (Nanjing Tech University, China)

On the Collective Slip Deformation Behavior in Polycrystalline Pure Titanium Thin Sheet
Linyuan Han, Naoya Tada, Takeshi Uemori, Junji Sakamoto (Okayama University, Japan)

The Influence of Temperature on the Grain-size Dependent Mechanical Responses of NiTi Shape Memory Alloys
Xi Xie, Yanyan Zhang, Bingxue Hou (Civil Aviation Flight University of China, China)

Investigation of Evaluation Model for Particle Collision on TiAl Alloys
Yu Kurashige, Kosei Ogita, Jun Muto, Hiroyuki Nagahama, Hiroki Saito, Yuji Ichikawa, Kazuhiro Ogawa (Tohoku University, Japan)

Mechanics of Molten Droplets Impacting a Solid Surface
Chao Kang, Motoki Sakaguchi (Zhejiang University of Technology, China)

Representative volume element model for simulating creep deformation and void nucleation /growth induced by grain boundary diffusion
Kazuki Shibanuma, Kota Sagara (The University of Tokyo, Japan)

13:10-14:40
Session A6 Testing and Evaluation
Chair: Prof. Chen Bao (Southwest Jiaotong University, China)

High-Throughput Small Punch Test Methodology Based on Load-Displacement Curve
Lixun Cai (Southwest Jiaotong University, China)

Nanoindentation Characterization for the Creep Behavior of a Nickel-based Single Crystal Superalloy at 850°C
Zengliang Gao, Zhiqiang Wang, Yixi Wang, Yuxuan Song, Hong Wang, Weiya Jin (Zhejiang University of Technology, China)

Extraction of Creep Material Constants in Norton's Law by Small Punch Test
Kotaro Murakami, Shin-ich Komazaki, Masao Sakane, Takamoto Itoh (Kagoshima University, Japan)

BEiT Deep Learning-aided Investigation on the Creep-fatigue Fracture Mechanisms of FB2 Steels with Different Dislocation Density
Wei Li, Chipeng Zhang, Guowei Bo, Cong Li, Jian Chen (Changsha University of Science & Technology, China)

Change of Fractal Dimension of Grain Boundaries, GOS and KAM with Creep
Fumiko Kawashima, Hirotoshi Nakano, Takumi Fujihara (Kumamoto University, Japan)

Investigations on Consistency of Two Types of High Temperature Deformation in a Superalloy
Tieshan Cao, Wen Kang, Congqian Cheng, Jie Zhao (Dalian University of Technology, China)

14:55-15:55
Session A7 Microstructure / Multiscale
Chair: Prof. Tadashi Hasebe (Kobe University, Japan)

Microstructure Evolution and Property Degradation of DZ409 Alloy under Thermal Exposure
Lei Wang, Yang Liu, Xiu Song, Huaijin Chen, Baoping Wu, Jiantao Wu (Northeastern University, China)

A Paradigm Shift in Multiscale Material Modeling Driven by the Field Theory of Multiscale Plasticity (FTMP)
Tadashi Hasebe (Kobe University, Japan)

Small Crack Growth Behaviors and Closure Effects in a Nickel-base Powder Metallurgy Superalloy at High Temperature
Xiaoguang Yang (Beihang University, China)

A Microstructure-sensitive Creep Life Prediction Model for DD6 Nickel-based Single Crystal Superalloy under Non-isothermal Creep
Ruoyao Cui, **Xiaogang Wang**, Chao Jiang (Hunan University, China)

Room C

Aug. 9 Sat.

9:45-10:45

■ Session C1 Creep and Creep-fatigue

Chair: Prof. Shouwen Shi (Tianjin University, China)

Life Analysis of Nickel-base Single Crystal Superalloy Multi-film-hole Plates under High Temperature Creep-fatigue Interaction
Shouliang Xiang, Duoqi Shi, Nina Li, Ya Zhao, Kangjie Zhu, Xiaoguang Yang (Beihang University, China)

Creep Fatigue Damage and Mechanism of Material for Heavy-duty Gas Turbine Disk under Hybrid stress-strain Controlled Loadings
Tianyu Zhang, Xiaowei Wang, Jianming Gong (Nanjing Tech University, China)

FTMP-Based Creep Rupture Simulation Considering Dislocation Substructure Formation and Macro Response
T. Chomaru, H. Tsuruta and T. Hasebe (Kobe University, Japan)

An Experimental Study of Creep Mechanism of P92 Steel at 650℃
Yixi Wang, Zengliang Gao, Yuxuan Song, Weiya Jin (Zhejiang University of Technology, China)

11:00-12:15

■ Session C2 Creep and TMF I

Chair: Prof. Kotarou Murakami (Kagoshima University, Japan)

Effect of Phase Angle and Dwell Time on Crack Growth Behavior in a Single Crystal Ni-based Superalloy under TMF Loading
Momoka Arai, Yasuhiro Yamazaki (Chiba University, Japan)

Dwell Thermo-mechanical Fatigue Life Prediction of an Advanced Turbine Disk Alloy Based on Crystal Plasticity Theory
Zhanghui Li, Rong Jiang, Yang Zhao, Jiawei Guo, Yixuan Jin, Yingdong Song (Nanjing University of Aeronautics and Astronautics, China)

Dwell-Fatigue Crack Propagation in Inconel 718: Effects of Tensile Dwell and Oxygen
Zhiqi Chen, Yuya Uemura, Shiyu Suzuki, Satoshi Utada, Hideaki Nishikawa, Toshio Osada, Yu Kurokawa, Motoki Sakaguchi (Institute of Science Tokyo, Japan)

Thermo-mechanical Fatigue Behaviour of an Additively Manufactured Nickel-based Superalloy: Experiments and Crystal Plasticity Modeling
Lu Zhang, Liujun Lu, Yuzhuo Wang, Rong Jiang, Liguo Zhao, Yingdong Song (Nanjing University of Aeronautics and Astronautics, China)

Creep Proporties of High Entropy Alloy AlCoCrFeNi Synthesized via Spark Plasma Sintering
Lei He, Naoki Ohgi, Ryota Honda, Ryona Hori, Mie Kawabata, Tomoko Kuno, Hiroshi Fujiwara, Takamoto Itoh (Ritsumeikan University, Japan)

13:00-14:30

■ Session C3 Creep and TMF II

Chair: Prof. Wenchun Jiang (China University of Petroleum, China)

Interaction between High Temperature Fatigue and Creep and Life Prediction of DZ411 Alloy at Different Temperatures
Tongtong Zhou, Tieshan Cao, Congqian Cheng, Jie Zhao (Dalian University of Technology, China)

A Comprehensive Study on Time and Temperature Dependent Fatigue Crack Propagation in Ni-based Superalloys
Motoki Sakaguchi, Shiyu Suzuki, Takanori Karato (Institute of Science Tokyo, Japan)

Exceptional Creep Resistance of Additively Manufactured New Nickel-based Superalloy Strengthened by Striped Precipitates and Grain Boundary
Rui Li, Zhandong Wang, Guifang Sun, En-Hou Han (Southeast University, China)

Microstructure and Creep Fracture Behavior of P92 Welded Joint

Chang Che, Yulong Zhao, Jianming Yu, Kai Gao, Yong Xiang, Luowei Cao, Xiaowei Liao (China Special Equipment Inspection and Research Institute, China)

Evolutions in Nonlinear Ultrasonics of Ni-based Superalloys due to Creep
Yutaka Ishii, Toshihiro Ohtani, Toshihito Ohmi, Masayuki Kamaya, Yutaro Ohta, Keiji Kubushiro (Shonan Institute of Technology, Japan)

Stress Corrosion Crack Propagation Behavior of 316LN Stainless Steel with Cold Working Deformation in High-temperature Environment
Xuejiao Shao, Xiaoming Bai, Hai Xie, Hui Li, Jun Tian, Kaikai Shi, Daoping Liu (Nuclear Power Institute of China, China)

Room B

Aug. 10 Sun.

9:00-10:30

■ Session B1 Coating and Oxidation

Chair: Prof. Hiroki Saito (Tohoku University, Japan)

Degradation Behavior and Failure Modes of Yttria-stabilized Zirconia Thermal Barrier Coatings under Reducing Environments
Jiyuan Cui, Hiroki Saito, Yuji Ichikawa, Makoto Nakashima, Atsushi Suzuki, Fumio Sato, Kazuhiro Ogawa (Tohoku University, Japan)

Synchronization Effect Through Incorporation of Trace Elements (B and La) to Enhance High-temperature Oxidation Performance of Ti6Al4V Fabricated via Additive Manufacturing
Lvjun Zhou, **Can Guo**, An Li, Chen Yu, Chenlu Yan, Xiaochong Liang (Southwest Petroleum University, China)

High-temperature Oxidation Behavior and Failure Mechanism of CrAl Composite Coated Zirconium Alloys
Conghui Zhang, Jin Zhang, Shuaiyang Liu, Wenguang Zhu (Xi'an University of Architecture and Technology, China)

Pseudo-Superplasticity of Harmonic Structure Designed CrMnFeCoNi High Entropy Alloy Compact
Hibiki Kawano, Shuki Onoue, Mie Kawabata, Hiroshi Fujiwara, Kei Ameyama (Ritsumeikan University, Japan)

Bio-inspired Porous Interphase Design for Simultaneous Strengthening and Toughening in High-temperature Ceramic-matrix Composites
Wang Hong, Xu Pang, Han Yan, Longbiao Li, Zhongwei Zhang, Daining Fang (Beijing Institute of Technology, China)

Deformation and Stress Evolution in the Solid Oxide Cell (SOC) During Re-sintering at 1300˚C
Jianguo Zhu, Wenlong Li, Shiyu Wu, Wanbin Guan (Jiangsu University, China)

10:45-12:15

■ Session B2 Advanced Materials I

Chair: Prof. Xiaowei Wang (Nanjing Tech University, China)

Effect of Harmonic Structure on Elevated Temperature Mechanical Properties of AlCoCrFeNi High Entropy Alloy
Ryona Hori, Ryota Honda, Mie Kawabata, Tomoko Kuno, Lei He, Kei Ameyama, Takamoto Itoh, Hiroshi Fujiwara (Ritsumeikan University, Japan)

High-Temperature Damage Behavior of C/SiC Composites under Thermo-Mechanical-Oxygen Coupling
Jianjun Chen, Le Zhang, Linlei Meng, Jingtao He (East China University of Science and Technology, China)

Study on Solid State Joining of Aluminum Alloy and Aluminum Plated Steel
Nuwan Karunathilaka, Naoya Tada, Ryo Chida, Takeshi Uemori, Junji Sakamoto, Masahiro Kawano (Zeno Tech Co., Ltd, Japan)

Investigation of Plastic Properties of Surface Modification Layer at Evaluated Temperatures using Indentation and Scratch Tests
Jianwei Zhang, Kaijuan Chen, Zhongmeng Zhu, Zhuoran Yang, Qian Cheng (Zhengzhou University, China)

Applicability of Hollow Specimen for Creep Testing in High-temperature Hydrogen Gas
Juan Shang, Masanobu Kubota, Kentarou Wada, Masaki Minamizono (Kyushu University, Japan)

Crack Initiation Mechanism and Stress-assisted Oxidation of Inconel 718 at 650°C in the High and Very High Cycle Regimes
Yong-Jie Wang, Hua-Yan Hu, Jian-Feng Wen, Miao Song, Shan-Tung Tu (East China University of Science and Technology, China)

13:10-14:40

■ Session B3 Advanced Materials II

Chair: Prof. Kazuhiro Ogawa (Tohoku University, Japan)

Fracture Toughness Testing and Evaluation of Domestically Produced Zr-2.5Nb Pressure Tube Materials at Elevated Temperature
Xikai Xu, Wenjing Ding, Chen Bao, Yupeng Cao, Guannan Zhao (Southwest Jiaotong University, China)

The High Temperature Tensile Properties and Mechanisms of Re-0.1ZrO2
Wenqing Ying, Chenghao Yang, Chengyu Zhang (Northwestern Polytechnical University, China)

Ensuring the Reliability of Organic Materials used for Radionuclide Adsorption
Hiroshi Takagi, Takamoto Itoh, Noritake Hiyoshi, Masao Sakane (HK Technology Co.,Ltd., Japan)

Investigation on the Temperature-dependent Uniaxial Ratchetting and its Micro-mechanisms of cast AZ91 Magnesium Alloy
Binghui Hu, Xu Zhang, Hongchen Miao, Han Jiang, Yanan Hu, Qianhua Kan, Guozheng Kang (Southwest Jiaotong University, China)

Research on the Fracture Behavior of High-strength Steel Main Bolts for Reactor Pressure Vessels
Kaikai Shi, Wanjun Wu, Hai Xie, Xiaoming Bai, Xuejiao Shao, Ziheng Tang (Nuclear Power Institute of China, China)

Mechanism of Reheat Cracking in 2.25Cr1Mo0.25V Welded Joints During Post-Weld Heat Treatment
Bin Yang, Zhenhao Jia, Wenchun Jiang (China University of Petroleum (East China), China)

14:55-16:10
Session B4 Material Properties at High Temperature
Chair: Prof. Conghui Zhang (Xi'an University of Architecture and Technology, China)

High-cycle Fatigue Behavior of a PtAl-coated Third-generation Single Crystal Superalloy at 900℃
Qiang Feng, Dong Sun, Siliang He, Weiwei Zheng, Song Lu, Jonathan Cormier, Longfei Li (University of Science and Technology Beijing, China)

Force-Heat Equivalence Energy Density Principle and its Applications to the Theoretical Characterization for Properties of Materials in Extreme Comditions
Weiguo Li (Chongqing University, China)

Creep-ratcheting Behavior of 9-12%Cr Steel Considering Stress Ratio Effect
Pei-Shan Ding, Tian-Shu Cai, **Xiao-Tao Zheng** (Wuhan Institute of Technology, China)

Direct Method-based Structural Creep-fatigue Assessment of Nuclear Reactor Pressure Vessel
Xiaoxiao Wang, Haofeng Chen (East China University of Science and Technology, China)

High Creep Resistance of (Hf0.2Ta0.2Ti0.2Nb0.2Zr0.2)C High Entropy Ceramics Prepared by Spark Plasma Sintering of the Self-propagating High Temperature Synthesized Powders
Chengyu Zhang (Northwestern Polytechnical University, China)

Poster

Chair: Prof. Yutaka Ishii (Shonan Institute of Technology, Japan)

Aug. 9 Sat.

14:40-16:20

P1 Life prediction method of solid oxide fuel cells based on mechanistic damage and electrochemical performance degradation
Hongxiang Zheng, Wenchun Jiang, Yun Luo (China University of Petroleum (East China))

P2 Research on the stress corrosion cracking behavior of 690 weld joints under high-temperature and high-pressure water environment
Hui Li, Xuejiao Shao, Xiaoming Bai, Yixiong Zhang, Bingyang Wu, Xing Yue (Nuclear Power Institute of China)

P3 Microstructure evolution and oxidation behavior of Cr/FeCrAl- coated Zr alloys in high-temperature steam
Xiaoling Yang, Baifeng Luan, Kazuhiro Ogawa (Chongqing University)

P4 Corrosion behavior of 316L steel in high-temperature chlor-alkali environment
Zhe Zhang, Jiaxin Yao, Hong Gao, Xu Chen (Tianjin University)

P5 Influence of Fatigue Damage on Corrosion and Stress Corrosion Behavior of Mechanical Structures
Yuhui Huang, Fu-Zhen Xuan, Shan-Tung Tu, Mingliang Zhu (East China University of Science and Technology)

P6 Transient thermal shock response of non-homogeneous materials with complex interface cracks
Yanyan Zhang, Liangzhong Ao, Yaoming Fu, Shulan Xiang, Ying Zhang (Civil Aviation Flight University of China)

P7 Microstructural Characteristics at the Interfaces of Additively Manufactured IN718 Alloy during In-Situ Tensile Deformation with EBSD Analysis
Menglei Wang, Xiaoguang Yang, Bin Li, Duoqi Shi, Guolei Miao, Shuangquan Guo, Yongsheng Fan (Beihang University)

P8 Microstructure-sensitive LCF life prediction of the grain size transition zone of a dual microstructure heat treated turbine disk
Yang Zhao, Rong Jiang, Yingdong Song (Nanjing University of Aeronautics and Astronautics)

P9 Microstructure Evolution and Creep Damage Mechanism of GH4698 at Elevated Temperature
Yong Jiang, Junlong Mo, Jianming Gong (Nanjing Tech University)

P10 Investigation of creep damage accumulation and microstructure evolution under variable loading in nickel-based single crystal superalloys
Muwei Cheng, Duoqi Shi, Xiaoguang Yang (Beihang University)

P11 Microstructural evolution and hot corrosion-creep behaviour in NiCoCrAlY coating of DSM11 alloy
Kai Gao, **Cong-Qian** Cheng, Ga-Ping Deng, Tie-Shan Cao, Jie Zhao (Dalian University of Technology)

P12 Research on Welding Repair and Performance Prediction Methods for New-Old Tubes in Hydrogen Reformers
Zhiayuan Han, Chuang Yu, **Luowei Cao** (China Speical Equipment Inspection and Research Institute)

P13 The cyclic deformation behavior of medium manganese TRIP steel at elevated temperatures: Experimental study at the macroscopic and microscopic scales
Zhicheng Song, Juan Zhang, Zongxi Wu, Xingmin Huang, Qianhua Kan (Southwest Jiaotong University)

P14 Tensile properties-related fatigue strength prediction model considering local slip characteristics based on the Basquin law
Jiangbo Fan, Duoqi Shi, Xiaoguang Yang (Beihang University)

P15 Investigation of deformation mechanism and creep behavior of 347H stainless steel using small punch creep test
Kaishu Guan (East China University of Science and Technology)

P16 A new model for high temperature creep deformation and failure of 316H austenitic stainless steel based on true stress and true strain
Ting Yu, Zhiqiang Wang, Yuxuan Song, Zhihui Cai, Yanyao Jiang (Zhejiang University of Technology)

P17 Enhanced high temperature fatigue strength of 316H austenitic stainless steel by surface mechanical rolling treatment
Yuxuan Song, Zhiqiang Wang, Hezhan Dong, Zhihui Cai, Yanyao Jiang (Zhejiang University of Technology)

P18 High temperature creep of 316H austenitic stainless steel with gradient nanostructured surface
Zhiqiang Wang, Yuxuan Song, Yanyao Jiang (Zhejiang University of Technology)

P19 Influence of strain rate and temperature on the tension behavior of wrought 316LN stainless steel under short-term thermal aging
Guangshun Cui, Congcai Huang, Yilei Li, Chen Bao (Southwest Jiaotong University)

P20 Modeling fatigue crack growth with consideration of in-plane constraint
Xin Huang, Hongyu Qi, Shaolin Li, Xiaoguang Yang, Duoqi Shi (Beihang University)

P21 Thickness debit effect on cyclic creep damage evolution in Inconel 718 superalloy: experimental investigation, theoretical modeling and numerical implementation
Le Xu, Run-Zi Wang, Ji Wang (Nanjing Tech University)

P22 Thermomechanical fatigue experiment and damage mechanism of a third-generation single crystal superalloy
Yuheng Yun, Yongsheng Fan, Duoqi Shi, Xiaoguang Yang (Beihang University)

P23 Deep Learning-Based Rapid Stress Analysis and Fatigue Life Optimization Method for Fir-Tree Attachment Structures
Xinyu Pu, Dasheng Wei, Shun Yang (Beihang University)

P24 Experimental and numerical study on the multiaxial fatigue properties of the Udimet 720Li under elevated thermal conditions
Junqi Feng, Dasheng Wei, Shun Yang (Beihang University)

P25 Comparison of the VHCF test methods applied in aeronautical materials
Yuhuai He, Wei Xu, Xin Chen (Beijing Institute of Aeronautical Materials)

P26 Thickness debit effect of Ni-based single crystal superalloy thin-walled specimens in the VHCF regime based on a vibration fatigue test
Wei Xu, Beichen Zhu, Xin Chen, Yuhuai He (Beijing Institute of Aeronautical Materials)

P27 Neural network-assisted modeling of cyclic plastic behavior in 316LN stainless steel
Lvfeng Jiang, Xu Zhang, Hongchen Miao, Han Jiang, Yanan Hu, Qianhua Kan, Guozheng Kan (Southwest Jiaotong University)

P28 Physics-Informed Deep Learning-Based Design and Assessment of Aeroengine High-Pressure Turbine Casing Containment
Shuaibin Qu, Junjie Yang, Yichen Huang, Yuning Zhang (Tsinghua University)

P29 Unified prediction of uniaxial ratcheting deformation at elevated temperatures with physics-informed multimodal network
Zhen Yu, **Xingyue Sun**, Xu Chen (Northwestern Polytechnical University)

P30 Physics-guided multi-fidelity neural networks for constitutive modeling of superalloy Incoloy 907 under wide-range conditions
Yichen Huang, Junjie Yang, Shuaibin Qu, Yuning Zhang (Tsinghua University)

P31 Cyclic creep behavior and life prediction method of AlCoCrFeNi2.1 eutectic high-entropy alloy
Hao Fang, Kengqiang Wang, Chuanyang Lu, Yanming He, Zengliang Gao (Zhejiang University of Technology)

P32 Influence of film cooling holes and thermal barrier coating on the creep behavior of DD6 single crystal superalloy
R. Jiang, H. X. Gong, Y. Wang, Y. X. Liu, Y. D. Song (Nanjing University of Aeronautics and Astronautics)

P33 Research on the fretting fatigue performance and life prediction of GH4169/FGH96 arc dovetail assemblies at high temperature
Xiyuan Zhang, Dasheng Wei, Shun Yang (Beihang University)

P34 Multiphysics-coupled Calibration of DCPD Methodology for In-situ Monitoring of Trans-scale Crack Growth in Perforated Ni-based Single Crystal Superalloys
Xi Ren, Fei Li (Northwestern Polytechnical University)

P35 Tensile deformation behavior of a CoNi-based single crystal superalloy at different temperatures
Song Lu, Boxuan Qu, Longfei Li, Qiang Feng (University of Science and Technology Beijing)

P36 Research Progress on Creep Failure Behavior and Life Prediction Models of Nickel-Based Single Crystal Superalloys
Yuan Li, Fei Li, Xi Ren, Zhixun Wen (Northwestern Polytechnical University)

P37 Study on non-isothermal creep behavior of the Ni-based single crystal superalloy at different temperatures
Yizhe Yang, Haiqing Pei, Zhixun Wen, Fei Li (Northwestern Polytechnical University)

P38 Mechanical Behavior of Nickel-Based Single-Crystal Superalloys Under Impact Loads: MD Simulation and Experiments
Yuning Zhang, Junjie Yang (Tsinghua University)

P39 Computational analysis of crack initiation and propagation in spheroidal graphite iron : Effect of voids and graphite inclusions
Xingling Luo, Tao Wu (Nanjing University of Aeronautics and Astronautics)

P40 Study on deformation mechanism of Cu-Al-Ni shape memory alloys (SMAs) processed by 3D printing (DMLS) and general commercial Cu-Al-Ni SMAs: thermal fatigue at high temperature
Yan Zhao, Guangcheng Dong (Baise University)

P41 Kink Band Mediated High-Temperature Plastic Deformation in Mo-Re Alloy
Congqing Liu, Xiaoling Yang, Baifeng Luan (Chongqing University)

P42 A Low-cycle Fatigue Life Prediction Methodology with Multiple Strain Ratios for a Ni-based PM Superalloy
Bin Zhong, Wei Xu, Bo Chen, Pengtao Zhao, Yuhuai He (Beijing Institute of Aeronautical Materials)

P43 Creep mechanical behavior and prediction model of carbon fiber-reinforced phenolic resin composites
Zheng Liu, Jikang Li, Shouwen Shi, Lyuhong Zhang, Xu Chen (Tianjin University)

P44 Effect of phase transformation on the high-temperature tensile behaviors of SA508 Gr. 3 steel: A crystal plasticity finite element investigation
Silu Zheng, Haolin Yu, Chuanyang Lu, Yuebing Li, Zengliang Gao (Zhejiang University of Technology)

Room A

Aug. 10 Sun.

16:20-16:50

Closing Ceremony

Chair: Prof. Fumiko Kawashima (Kumamoto University, Japan)

Awards ceremony

Information on the next conference

Prof. Wenchun Jiang (China University of Petroleum)

Closing remarks

Prof. Shin-ichi Komazaki (Chair of the Japan committee, Kagoshima University)

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