

**Symposia - D01**  
**Advanced High Temperature Structural Materials**

**October 15 (Sunday), 2023**

**Conference Room: 5601, 6# floor**

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**8:30-10:00 Session I**

**Chair: Xinbao Zhao, Yongwang Kang**

**8:30-8:35 (D01)**

**Opening Speech**

Lin Liu, Northwestern Polytechnical University, China

**8:35-9:00 (D01-01)**

**Research and development of high temperature structural intermetallics (Keynote)**

Chengbo Xiao, ACEE Beijing Institute of Aeronautical Materials, China

**9:00-9:20 (D01-02)**

**The introduction of a novel prediction model of the freckle defects for single-crystal superalloy blades (Invited)**

Fu Wang, Xi'an Jiaotong University, China

**9:20-9:40 (D01-03)**

**A novel strategy to improve the comprehensive performance of single-crystal superalloys (Invited)**

Wanshun Xia, Zhejiang University, China

**9:40-10:00 (D01-04)**

**The influence of the strengthened  $\gamma'$  phase on creep process by altering Ta/Al ratio of single crystal superalloys (Invited)**

Zhuoran Li, Suzhou HTA Materials Technology Co., Ltd., China

**10:00-10:20 Coffee Break**

**10:20-12:05 Session II**

**Chair: Xinbao Zhao, Yongwang Kang**

**10:20-10:45 (D01-05)**

**Stray grain formation in seeding process of single crystal superalloys (Keynote)**

Dexin Ma, Shenzhen Wedge Central South Research Institute Co., Ltd., China

**10:45-11:05 (D01-06)**

**Effect of substituting Mo for W on  $\gamma/\gamma'$  lattice misfit of Ni based single crystal superalloys (Invited)**

Cheng Ai, Chang'an University, China

**11:05-11:25 (D01-07)**

**Temperature dependence of low cycle fatigue for the Co-based single crystal superalloy (Invited)**

Jinshan He, University of Science and Technology

Beijing, China

**11:25-11:45 (D01-08)**

**Evolution of the dendrite's structures in large-sized single crystal superalloy blades (Invited)**

Chao Zhang, Northwestern Polytechnical University, China

**11:45-12:05 (D01-09)**

**Effect of heat exposure on the microstructure of DD419 nickel-based single crystal superalloy (Invited)**

Dongqin Li, Beijing Institute of Technology, China

**12:05-13:30 Lunch**

**13:30-15:00 Session III**

**Chair: Chuanyong Cui, Zhihao Yao**

**13:30-13:55 (D01-10)**

**A novel approach to get better trade-off between mechanical and wear behaviors of Stellite 6B alloy (Keynote)**

Ji Zhang, Central Iron & Steel Research Institute, China

**13:55-14:20 (D01-11)**

**Research on the similarities and differences of microstructure and properties between high  $\gamma'$  content powder and wrought superalloy (Keynote)**

Zhihao Yao, University of Science and Technology Beijing, China

**14:20-14:40 (D01-12)**

**Design and mechanical properties of discontinuous precipitation strengthened Ni-based multi-component alloys with lamellar heterostructure (Invited)**

Yang Zhou, Shanghai Jiao Tong University, China

**14:40-15:00 (D01-13)**

**Hot deformation behavior, superplasticity and microstructure evolution of a new hot isostatic pressed nickel-based superalloy (Invited)**

Hubao Wang, Yantai University, China

**15:00-15:20 Coffee break**

**15:20-17:10 Session IV**

**Chair: Chuanyong Cui, Zhihao Yao**

**15:20-15:45 (D01-14)**

**A novel microstructure design and mechanical**

**properties optimization of a precipitation strengthened Fe-Ni-based superalloy (Keynote)**  
Chuangong Cui, Institute of Metal Research, Chinese Academy of Sciences, China

**15:45-16:05 (D01-15)**

**Mechanism of intermediate temperature plasticity enhancement in GH4065A alloy based on long-term aging treatment (Invited)**  
Yingbo Bai, Institute of Metal Research, Chinese Academy of Sciences, China

**16:05-16:25 (D01-16)**

**Effect of long-term thermal exposure on microstructure of HT700P Alloy (Invited)**  
Xinxing Liu, Harbin Boiler Company Limited, China

**16:25-16:45 (D01-17)**

**Improve the ductility of a nickel based superalloy by optimizing secondary phase distribution through grain boundary engineering (Invited)**  
Hui Li, Shanghai University, China

**16:45-17:10 (D01-18)**

**A modified cast and wrought route for the manufacture of superalloys with a temperature capability above 700°C (Invited)**  
Minshi Wang, Baowu Special Metallurgy Co., Ltd., China

**17:10-17:50 (D01)**

**Poster**

## Symposia - D01

### Advanced High Temperature Structural Materials

October 16 (Monday), 2023

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**8:30-10:00 Session I**

**Chair: Manping Liu, Jinguo Li**

**8:30-8:55 (D01-01)**

**Electron beam powder bed fusion additive manufacturing of high-temperature metallic materials (Keynote)**  
Feng Lin, Tsinghua University, China

**8:55-9:20 (D01-02)**

**Composition design of a new high-performance nickel-based superalloy for additive manufacturing (Keynote)**  
Jinguo Li, Institute of Metal Research, Chinese Academy of Sciences, China

**9:20-9:40 (D01-03)**

**Formation mechanism and control of microcracks in nickel-based superalloys manufactured by laser selective melting additive manufacturing (Invited)**  
Huaixue Li, AVIC Manufacturing Technology Institute, China

**9:40-10:00 (D01-04)**

**Design of high-performance precipitation-strengthened nickel-based superalloys and additive manufacturing performance control (Invited)**  
Bo Song, Huazhong University of Science and Technology, China

**10:00-10:20 Coffee Break**

**10:20-11:45 Session II**

**Chair: Manping Liu, Jinguo Li**

**10:20-10:45 (D01-05)**

**Advancing high-performance heat-resistant materials through microstructure manipulation (Keynote)**  
Fei Sun, Nagoya University, Japan

**10:45-11:05 (D01-06)**

**Ni<sub>3</sub>Al precipitation in the HT700 alloy for the thick-wall components of 650°C ultra supercritical power plant (Invited)**  
Jingbo Yan, Xi'an Thermal Power Research Institute CO., LTD., China

**11:05-11:25 (D01-07)**

**Microstructural evolutions of Ni-Fe-based superalloys deformed by creep and tension (Invited)**  
Guanghui Cao, Shanghai University, China

**11:25-11:45 (D01-08)**

**Impacts of different aging treatments on creep performance of a Ni-based wrought superalloy (Invited)**  
Hao Liu, Zhejiang University, China

**11:45-12:00 (D01)**

**Award and summary**  
Yuefeng Gu, Zhejiang University, China

