Wednesday 1 July 2015 (Day 3)

Auditorium A

09:15〜10:35
Plenary Lecture 5 – 6
Chairperson: M. TAKEYAMA (Tokyo Institute of Technology, Japan)

09:15〜 2P-05 Aubert & Duval solutions for power generation and the energy policy in France
Philippe HERITIER

09:55〜 2P-06 Progress on A-USC Materials Technology in the U.S.
John SHINGLEDECKER, Howard HENDRIX, Robert PURGERT

10:45〜12:25
Heat Resisting Steels 3  Fundamental 3 (New Austenitic Steels)
Chairperson: J. SHINGLEDECKER (EPRI, USA)

10:45〜 2H-08 Invited Creep strength of the GTAW welded joint of new 18at%Cr-30at%Ni-Nb austenitic steel at 700°C
Yasushi HASEGAWA, Mitsuharu YONEMURA, Masaaki IGARASHI, Hiroshi MORIMOTO, Masao TAKEYAMA

11:10〜 2H-09 Grain Boundary Nucleation of Fe2Nb Laves Phase in a Novel Austenitic Heat Resistant Steel of Fe-20Cr-35Ni-2.5Nb
Fagang GAO, Naoki TAKATA, Satoru KOBAYASHI, Masao TAKEYAMA

11:35〜 2H-10 Invited Steam Oxidation Resistance of the Modified Fe-20Cr-35Ni-2.5Nb (at.%) Steel at 1073 K
Mitsutoshi UEDA, Kei CHIKAMA, Masao TAKEYAMA

12:00〜 2H-11 Investigation of the Influence of Laves phase and NiAl Precipitation on Mechanical Properties in an Alumina-Forming Austenitic Stainless Steel
Geneva TROTTER, Ian BAKER
15:20〜17:00
Heat Resisting Steels 5  Welding 1
Chairperson: M. MITSUHARA (Kyushu University, Japan)

15:20〜 2H-16 Invited Effect of Chemical Composition on the Creep Rupture Strength of Mod. 9Cr-1Mo Steel Weldments
Nobuyoshi KOMAI, Ko ARISUE, Nobuhiko SAITO, Kimihiko TOMINAGA, Masaaki FUJITA

15:45〜 2H-17 Creep and Damage Investigations of MARBN Welded Joints
C. SCHLACHER, M. DIKOVITS, C. SOMMITSCH, P. MAYR

16:10〜 2H-18 High Temperature Creep Behavior of Cross-weld Specimens of Weld Joint between T92 Martensitic and Super304H Austenitic Steels
Sung-Min HONG, Myung-Yeon KIM, Jin-Yoo SUH, Jae-Hyeok SHIM, Woo-Sang JUNG, Jung-Chel CHANG, Dong-Joon MIN

16:35〜 2H-19 Performance Improvement of Creep-Resistant Ferritic Steel Weldments through Thermo-Mechanical Treatment and Alloy Design
Yukinori YAMAMOTO, Sudarsanam Suresh BABU, Benjamin SHASSERE, Xinghua YU

17:15〜18:30
Heat Resisting Steels 6  Welding 2
Chairperson: K. SAWADA (National Institute for Material Science, Japan)

17:15〜 2H-20 Verification of Creep Life Improvement of Post Weld Normalized and Tempered 9Cr1MoVNb Steel Weldment
T. TOKAIRIN, T. SATO, H. HARADA, S. KIKUHARA

17:40〜 2H-21 Microstructural Evolution of Welded Joint During Creep in High Cr Ferritic Heat-Resistant Steel
Masatoshi MITSUHARA, Shinya AKADA, Shigeto YAMASAKI, Hideharu NAKASHIMA, Minoru NISHIDA, Yasushi HASEGAWA

2H-22 Canceled

18:05〜 2H-23 Creep Damage Evaluation of Gr.122 Welded Joint by Hydrogen Thermal Desorption Analysis
Shin-ichi KOMAZAKI, Hayato YAMASHITA, Masafumi OSHIMA
**Auditorium B**

**10:45〜12:25**

**Superalloys 3** Fundamental 2 (Mechanical Properties)

Chairperson: T. M. POLLOCK (University of California Santa Barbara, USA)

10:45〜 2S-09  **Keynote** Time-Resolved Synchrotron Diffractometry of Phase Transformations in High Strength Nickel-Based Superalloys  
*D. M. COLLINS, D. J. CRUDDEN, E. ALABORT, T. CONNOLLEY, R. C. REED*

11:10〜 2S-10  Microstructure and Tensile Properties of IN 718 Built up by Selective Laser Melting  
*Yen-Ling KUO, Koji KAKEHI, Yoshihiro NAKAYAMA, Shota HORIKAWA*

11:35〜 2S-11  Crystallographic Orientation Dependence on Cyclic Frictional Behavior in a Single Crystal Ni-Base Superalloy  
*Balavenkatesh RENGARAJ, Masakazu OKAZAKI*

12:00〜 2S-12  Creep Damage Evaluation of Ni-base Superalloy based on X-ray Diffraction Line Broadening  
*Y. MUKAI, T. HAYASHI, H. DEGUCHI, H. KAGAWA*

**15:20〜17:00**

**Superalloys 4** Gas Turbine

Chairperson: P. HELITIER (Aubert & Duval, France)

15:20〜 2S-13  **Keynote** ONERA's Trajectory in R & D of Materials for Aircraft Gas Turbine Engines  
*Shigehisa NAKA*

15:45〜 2S-14  **Invited** Alloy Design and Innovative Manufacturing Process of High Strength Ni-base Forged Alloys for High Efficiency Thermal Power Plants  
*Shinya IMANO, Yun SATO, Takashi SHIMAYAMA, Atsuo OTA*

16:10〜 2S-15  Trial Production of Large Sized Gas Turbine Disk of Ni-based Superalloy FX550  
*Naoya SATO, Toshiaki NONOMURA, Eiji SHIMOHIRA, Toshihiro UEHARA, Takashi SHIBAYAMA, Shinya IMANO*

16:35〜 2S-16  Development of Microstructure Prediction Technology for Super-Alloy Turbine Discs in Free-Forging Process  
*Takuma OKAJIMA, Shingo SAKURAI, Masanao FUJIWARA*
17:15〜 2S-17 Microstructure Changes and Oxidation Resistance of Aluminized Ni-Based Superalloys
Kazuki KASAI, Hideyuki MURAKAMI

17:40〜 2S-18 Gadolinium Zirconate/YSZ Thermal Barrier Coatings: Mixed-Mode Interfacial Fracture Toughness and Sintering Behavior
Martin FROMMHERZ, Alfred SCHOLZ, Matthias OECHSNER

18:05〜 2S-19 On the Corrosive Behaviour of Nickel-based Superalloys for Turbine Engines: Oxide Growth and Internal Microstructural degradation
Karl Michael KRÄMER, Christoph BAUMANN, Alfred SCHOLZ, Matthias OECHSNER

18:30〜 2S-20 Development of a Sol-Gel Ceramic Coating for the Protection against High-Temperature Corrosion in Waste-to-Energy Plants
Stan VERDEROSA, Julien GARCIA, Jean-Michel SOBRINO, Jérôme FAVERGEON
Conference Room 1

10:45〜12:25
Heat Resisting Steels 4 Life Assessment

Chairperson: N. KOMAI (Mitsubishi Hitachi Power Systems, Ltd., Japan)

10:45〜 2H-12  **Keynote**  Code Specification Issues and Life Prediction of Advanced Ferritic Steels for Power Applications
Fujimitsu MASUYAMA

11:10〜 2H-13  **Keynote**  Aberrant P91 and the Development of New Inspection and Life Assessment Techniques
Ahmed SHIBLI

11:35〜 2H-14  Investigations on Precipitation Evolution of MarBN Steels for Microstructure Based Life-Time Assessments
E. PLESIUTSCHNIG, S. VUJIC, C. SOMMITSCH

12:00〜 2H-15  Assessment of Crack Initiation in the Creep Regime
Alexander HOBT, Magdalena SPECHER, Andreas KLENK

15:20〜17:00
Advanced Materials & Processing 3  Co-Al-W / Ni Intermetallics

Chairperson: I. BAKER (Thayer School of Engineering, Dartmouth College, USA)

15:20〜 2A-09  **Keynote**  Development of Dual Two-Phase Ni$_3$Al and Ni$_3$V Intermetallic Alloys
Takayuki TAKASUGI, Yasuyuki KANENO

15:45〜 2A-10  **Invited**  Alloy Design of Co-Al-W-Based Superalloy
Toshihiro OMORI, Kazuya SHINAGAWA, Ikuo OHNUMA, Ryosuke KAINUMA, Kiyohito ISHIDA

16:10〜 2A-11  Long Term Phase Stability of a $\gamma'$ Precipitation Strengthened Co-Ni-Al-W Alloy under Exposure at High-Temperature Range
Mototsugu OSAKI, Shigeki UETA, Toshihiro OMORI, Kiyohito ISHIDA

16:35〜 2A-12  **Invited**  Effect of Alloying with Cr on High Temperature Oxidation in Co-Based two-Phase Superalloys
Shogo IKEDA, Takahiko ITO, Katsushi TANAKA
17:15～18:55  
Advanced Materials & Processing 4  Silicides & Others  
Chairperson: M. HELLMAYER (Karlsruhe Institute of Technology, Germany)

17:15～  2A-13  Directional Solidification of Ternary Nb-Si-Cr Eutectics and Its Influence on the Creep Resistance  
Florian GANG, Martin HELLMAYER

17:40～  2A-14  Invited  Tensile Creep Properties of TiC-Added Mo-Si-B Alloys in the Ultrahigh Temperature Region  
Kyosuke YOSHIKI, Daiki KANEKON, Shiho YAMAMOTO, Joung Wook KIM,  
Junya NAKAMURA, Kouichi MARUYAMA

18:05～  2A-15  Solidification Pathway and Microstructure Evolution of a Ternary Eutectic Mo-Si-B Alloy for High Temperature Applications  
Georg HASEMANN, Florian GANG, Martin PALM, Iurii BOGOMOL,  
Manja KRÜGER

18:30～  2A-16  Thermodynamic Assessment of the Al-Mo System and of the Al-Ni-Mo System  
Jian PENG, Peter FRANKE, Hans J. SEIFERT