

4th IMR Symposium on Material Sciences and Engineering

– High Temperature Corrosion of Materials

September 23 – September 26, Shenyang, China

September 23

Visiting IMR

15:00 — 15:20 South Campus

15:30 — 17:30 North Campus

18:00 Reception

September 24

Session 1: Hot Gas Corrosion

Chair: Yan Niu, Alain Galerie

8:30 – 9:00 High Temperature Corrosion Activities in IMR
Fuhui Wang (China)

9:00 – 9:30 Thin Oxide Film Growth during Final Annealing of Stainless Steels
Alain Galerie (France)

9:30 -10:00 The Effect of Alloying Additions (Cr, Mo, W, V) on the Oxidation of High Speed Steels under Dry and Wet Conditions
Fernando Cosme Rizzo Assuncao (Brazil)

10:00 – 10:20 Tea Break

10:20 – 10:50 Metal Dusting and Its Prevention
Jianqiang Zhang (Australia)

10:50 – 11:20 Oxidation and Coatings for Power Generation: New Super-ultra Critical Steam Turbines
Francisco Javier Perez Trujillo (Spain)

----- Lunch -----

Session 2: Fundamentals

Chair: Michael Schuetze, Yedong He

14:40 – 15:10 Continuous Monitoring of Oxygen Chemical Potential on the Surface of Growing Scales and Its application to High Temperature Oxidation of Metals
Toshio Maruyama (Japan)

15:10 – 15:40 The Thermodynamic and Kinetic Diagrams for Binary and Ternary Alloys Plus One Oxidant
Francesco Gesmundo (Italy)

15:40 -16:10 Evidence for Vacancy Injection during the Oxidation of Iron
Donald Lees (UK)

16:10 – 16:30 Tea Break

16:30 – 17:00 Segregation at TGO/Bondcoat Interfaces and Its Effect on TGO Adherence
Peggy Hou (USA)

17:00 – 17:30 Recent Advances in the Quantitative Characterization of Mechanical Scale Failure
Michael Schuetze (Germany)

----- September 25 -----

Session 3: High Temperature Corrosion of Alloys

Chair: Brian Gleeson, Shengkai Gong

8:30 – 9:00 Kinetic and Microstructural Analyses of Chromia Forming Alloys during Cyclic Oxidation
David Young (Australia)

9:00 – 9:30 Oxidation Behavior of Pt-modified Ni-Al Alloy in the Atmospheres Containing Water Vapor
Shigenari Hayashi (Japan)

9:30 -10:00 The Effect of Zr on the Oxidation Properties of Fe₃Al Intermetallic Compound
Kazimierz Przybylski (Poland)

10:00 – 10:20 Tea Break

10:20 – 10:50 Nanomaterials and High Temperature Oxidation -Production & Prevention
Wei Gao (New Zealand)

10:50 – 11:20 Environmental and Compositional Effects on the Hot-Corrosion Behavior of Ni-Based Alloys and Coatings
Brian Gleeson (USA)

----- Lunch -----

Session 4: High Temperature Protective Coatings

Chair: Mingkai Lei, Christoph Leyens

14:40 – 15:10 High Temperature Oxidation Resistant Coatings Composed of YSZ Particles Packaged by Nano-Al₂O₃ Film
Yedong He (China)

15:10 – 15:40 Environmental Protection of Gamma Titanium Aluminides by Coatings
Christoph Leyens (Germany)

15:40 -16:10 Hf and Dy Modified NiAl Bond Coat for Thermal Barrier Coating Application
Shengkai Gong (China)

16:10 – 16:30 Tea Break

16:30 – 17:00 Surface Sealing of EB-PVD Thermal Barrier Coatings by High-intensity Pulsed Ion Beam
Mingkai Lei (China)

17:00 – 17:30 Diffusion Barrier Coating System and Oxidation Behavior of Coated Alloys
Toshio Narita (Japan)

17:30 – 18:00 On the Selective Oxidation of Novel Electrodeposited Nanocomposites Distributing Cr or/and Al Nanoparticles
Xiao Peng (China)

----- Banquet -----