

PROGRAM FOR THE
21ST ANNUAL CONFERENCE ON FOSSIL ENERGY MATERIALS
KNOXVILLE MARRIOTT, 500 E. HILL AVENUE (DOWNTOWN)
KNOXVILLE, TENNESSEE
APRIL 30-MAY 2, 2007

Monday, April 30th, 2007

- 12.00 noon Registration
- 1.00 pm Welcome and Introductory Remarks
 Roddie Judkins, Oak Ridge National Laboratory
- 1.10 pm Brief Update on DOE's Advanced Research Materials Program
 Robert Romanosky, U.S. Department of Energy, National Energy Technology
 Laboratory

Session 1 – NEW ALLOYS: PROPERTIES AND PERFORMANCE

- 1.25 pm Introduction/Chair
 Roddie Judkins, Oak Ridge National Laboratory
- 1.30 pm Advanced Pressure Boundary Materials
 Mike Santella, Oak Ridge National Laboratory
- 2.00 pm Corrosion Performance of Structural Alloys for Oxy-Fuel Combustion Systems
 Ken Natesan, Argonne National Laboratory
- 2.30 pm Optimization of ODS-Fe₃Al and MA956 Alloys for Heat Exchanger Tubes
 Bimal Kad, University of California at San Diego
- 3.00 pm Break
- 3.30 pm Applications for Dispersion-Strengthened Alloys in Thermal Power Systems
 John Hurley, University of North Dakota, Energy and Environmental Research Center
- 4.00 pm Steam Turbine Materials and Corrosion
 Gordon Holcomb, U.S. Department of Energy, National Energy Technology Laboratory
- 4.30 pm The Influence of a Cerium Surface Treatment on the Oxidation Behavior of Cr₂O₃-
 Forming Alloys
 David Alman, U.S. Department of Energy, National Energy Technology Laboratory
- 5.00 pm Adjourn

Monday, April 30th, 2007

6.00-7.30 p.m. Networking and Poster Session

Session 2 – POSTERS

1. Development of Inorganic Membranes for Hydrogen Separation
Brian Bischoff, Oak Ridge National Laboratory
2. Pilot Facility for the Production of Silicon Carbide Fibrils
Richard Nixdorf, ReMaxCo Technologies, Inc.
3. Activated Carbon Composites for Air Separation
Fred Baker, Oak Ridge National Laboratory
4. Wear Mechanisms of High Chrome Refractory Brick Removed from Commercial Gasifiers
Arthur Petty, U.S. Department of Energy, National Energy Technology Laboratory
5. Enabling the Practical Application of Oxide Dispersion-Strengthened Ferritic Steels
Ian Wright, Oak Ridge National Laboratory
6. Control of Defects and Microstructure in ODS Alloys
Andy Jones, University of Liverpool
7. In-Plant Corrosion Probe Tests
Gregg Stanko, Foster Wheeler Development Corporation
8. Concepts for Smart, Protective High-Temperature Coatings
Peter Tortorelli, Oak Ridge National Laboratory
9. Optimizing Processing of Mo-Si-B Intermetallics Through Thermodynamic Assessment of the Mo-Si-B and Related Systems
Matt Kramer, Ames Laboratory

Tuesday, May 1st, 2007

7.30 am Breakfast

Session 3 – COATINGS & PROTECTION OF MATERIALS

- 8.30 am Introduction/Chair
Patricia Rawls, U.S. Department of Energy, National Energy Technology Laboratory
- 8.35 am Long-Term Performance of Aluminide Coatings on Fe-Base Alloys
Bruce Pint, Oak Ridge National Laboratory
- 9.05 am Improving the Weldability of FeCrAl Weld Overlay Coatings
John Dupont, Lehigh University
- 9.35 am Synthesis and Oxidation Performance of Al-Modified $\gamma + \gamma^1$ Bond Coatings on Ni-Based Superalloys
Ying Zhang, Tennessee Technology University

- 10.05 am Break
- 10.30 am Protection Systems: Corrosion-Resistant Coatings
Beth Armstrong, Oak Ridge National Laboratory
- 11.00 am Microstructure and Properties of HVOF-Sprayed Protective Coatings
Richard Wright, Idaho National Engineering and Environmental Laboratory
- 11.30 pm Development of Nondestructive Evaluation Methods for Ceramic Coatings
Jiangang Sun, Argonne National Laboratory
- 12:00 pm Working Lunch, Presentation by Roddie R. Judkins, Director, ORNL Fossil Energy Program

Session 4 – FUNCTIONAL MATERIALS

- 1.55 pm Introduction/Chair, Cindy Powell
U.S. Department of Energy, National Energy Technology Laboratory
- 2.00 pm Results from a Sidewall Panel Field Trial of a Spall-Resistant Refractory Material Developed at NETL for Slagging Gasifiers
Cindy Powell, U.S. Department of Energy, National Energy Technology Laboratory
- 2.30 pm Thermochemical Modeling of Refractory Corrosion in Slagging Coal Gasifiers in Support of Development of Improved Refractory Material
Ted Besmann, Oak Ridge National Laboratory
- 3.00 pm A $\text{PD}_{60}\text{CU}_{40}$ /Porous Iron Aluminide Membrane for Hydrogen Separation
Steve Paglieri, Los Alamos National Laboratory
- 3.30 pm Break
- 4.00 pm Sealing/Joining Technology for Gas Separation Membranes
Scott Weil, Pacific Northwest National Laboratory
- 4.30 pm Gas Sensors for Fossil Energy Applications
Tim Armstrong, Oak Ridge National Laboratory
- 5.00 pm Adjourn

Wednesday, May 2nd, 2007

7.30 am Breakfast

Session 5 – BREAKTHROUGH CONCEPTS

8.30 am Introduction/Chair
Ian Wright, Oak Ridge National Laboratory

8.35 am Nanoprecipitates in Steels
Joachim Schneibel, Oak Ridge National Laboratory

9.05 am Mechanisms of Impurity Effect and Ductility Enhancement of Mo and Cr Alloys
B. Kang/N. Ma, West Virginia University

9.35 am Advanced Processing Developments in Metallic Powders for Fossil Energy Applications
Iver Anderson, Ames Laboratory

10.05 am Break

10.30 am Microstructures of the Hot Deformed Ti-Al-Nb-W-Alloys
Peter Liaw, University of Tennessee

11.00 am Multiphase HT Alloys: Exploration of Alumina-Forming, Creep Resistant Austenitic
Stainless Steels
Mike Brady, Oak Ridge National Laboratory

11.30 am Closing Remarks
Patricia Rawls
U.S. Department of Energy, National Energy Technology Laboratory
Roddie Judkins
Oak Ridge National Laboratory

11.45 pm Adjourn