Academic Advisory Board Activities and Perspectives

Karen A. Thole, Chair
Academic Advisory Board
Virginia Tech, Mechanical Engineering Department

Peer Review Workshop
October 20, 2005

Discussion Topics

- Review of the Academic Advisory Board
- Activities since 2004 Peer Review Workshop
- Open discussion

Academic Advisory Board (AAB)

Chair: Karen Thole, Virginia Tech
Co-Chair: Tim Lieuwen, Georgia Tech
Secretary: Vince McDonell, U of California-Irvine
Education: Yongho Sohn, U of Central Florida
Combustion: Dom Santavicca, Penn State
Materials: Eric Jordan, U of Connecticut
Aero / Ht Transfer: Jeffrey Bons, Brigham Young
Diagnostics: Scott Sanders, U. of Wisconsin

Contact any of us with your concerns/issues**!!!**

Goals for the AAB

- Provide guidance to the UTSR Program
- Provide guidance on the technical directions for the long-term research mission of the UTSR Program
- Provide guidance on the research, educational, and outreach missions of the UTSR Program
- Provide guidance to the UTSR Program on communication between all parties
- Provide educational outreach through short courses and written documentation

By-laws were passed by the AAB
(on the UTSR website)

- Chair, Co-Chair, Secretary, Educational Sub-Committee Chair, Members-at-Large (each research area)
- Two year terms with the chair being an ex-officio
- Elections to take place at the Peer Review Workshop with a majority vote from academic members who are present

How does the AAB function?

- UTSR Outreach is guided by Bill Day, Outreach Manager of SCIES
- Richard Huntington (ExxonMobil) is the IRB liason
- Met at ExxonMobil in January 2005 to establish this year's priorities
- Met at Peer Review Workshop in October 2005 to review progress
- Drafted UTSR Program suggestions for:
  - Proposal process
  - Program communication
  - Short course

Proposal suggestions to the UTSR Program

- **Provide IRB with the titles and fact sheets of currently funded UTSR projects with the proposals to be evaluated to avoid duplication**
- **Have proposing PI include a summary of their proposed work in relation to funded UTSR projects**
- **Require that the PI include a discussion of the broader impacts of the proposed activities**

Proposal suggestions to the UTSR Program

Discussion of peer review of proposals for UTSR

- **Unanimously denied by the AAB**

Discussion of UTSR helping to fulfill the Energy Efficiency and Renewable Energy (EERE) Roadmap

- **Hosted Debbie Haught to discuss the UTSR Program**

Actively give input on the UTSR RFP drafts

- **All are invited to give input**

Program suggestions for communication

Addressing the Peer Review Workshop

- **Proposal will soon be coming forward from the AAB. Please give us input**
- **Working towards stimulating industry participation and more in-depth technical presentations.**

Discussion of reporting requirements for UTSR

- **Currently twice a year**

Assist the Gas Turbine Association

- **Worked with Jeff Abboud to generate letters to Congressional members**

AAB Short Course Proposal

Objective is to refresh industry members with fundamental science, review the current status and issues, and survey emerging technologies related to modern turbine engineering

Tutorials will be 3-4 hours presented at the industrial site by UTSR members

Costs will be $2,000 (50% as instructor honorarium and 50% as indirect cost to AAB) plus travel expenses

IRB passed this proposal!

AAB Short Course Topics

Combustion:

Combustion Diagnostics; Pollutant Chemistry and Mitigation Strategies; Chemistry of Hydrocarbon Oxidation; Fundamentals of Premixed Combustion, Combustion Instabilities

Aerodynamics/Heat Transfer:

Film Cooling; Surface Degradation and Roughness; Secondary Flows: Tip Leakage Flows and Endwalls; Fundamentals of Computational Fluid Dynamics and its Applications to Turbines; Experimental Methods in Heat Transfer and Flow Measurements

AAB Short Course Proposal

Sensors and Diagnostics:

Gas Turbine System Diagnostics and Prognostics, Data Acquisition, Processing, and Analysis; Emerging Technologies in Sensors and Diagnostics

Materials:

Principles and Applications of Modern Materials Characterization Techniques; Principles and Applications of Non-Destructive Evaluation and Testing for Materials and Coatings for Turbine Applications; Materials and Coatings for Turbine Applications I: Processing and Properties; Materials and Coatings for Turbine Applications II: Degradation Modes and Mechanisms; Materials and Coatings for Turbine Applications III: Mechanical Behavior, Fracture Mechanics and Failure

AAB Short Course Proposal

Next step is to identify a number of instructors

Assemble course catalog/brochure

Begin teaching the courses as early as next spring

Questions and Suggestions