

ASME FY08 Fuel Cell Peer Review Panel

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Thomas L. Cable, Ph.D.

Dr. Cable is a specialist in Solid Oxide Fuel Cells and Regenerative Fuel Cells. He is presently employed as the Chief Scientist in the Ceramics Branch of the University of Toledo/NASA Glenn Research Center. In this position, he serves as the technical lead in the development of a new, all ceramic SOFC design for aeronautic applications. Prior to this, he was employed as Chief Scientist at McDermott Technology Inc. (MTI) and was principle investigator in cell development of the SOFC fuel cell stack design. Dr. Cable holds several patents in SOFC design and direct conversion of hydrocarbon with SOFCs. Dr. Cable received a B.S. in Chemistry/Chemical Engineering and Ph.D. in Chemical and Fuels Engineering from the University of Utah. He also completed a post doctoral fellowship at Brigham Young University.

Minking K. Chyu, Ph.D., Review Panel Chair

Dr. Chyu is chair of the Department of Mechanical Engineering and Materials Science and the Leighton Orr (endowed) Professor of Engineering at the University of Pittsburgh. Dr. Chyu's primary research area lies in thermo-fluid issues related to power and propulsion system, material processing, and microsystem technology. Major projects he has conducted include convective cooling of gas turbine airfoils, thermal control of rotating machinery, thermal measurement and imaging techniques, and transport phenomena in adaptive flow control and fabrication of micro-structures. He is a Fellow of ASME and is currently a member of the Heat Transfer Technical Committee in Gas Turbines (K-14) and is Associate Editor of the *ASME Journal on Heat Transfer*. Dr. Chyu received a B.S. in Nuclear Engineering at the National Tsing Hua University in Taiwan, a M.S. in Applied Mechanics at the University of Cincinnati, and a Ph.D. in Mechanical Engineering from the University of Minnesota.

Brian Gleeson, Ph.D.

Dr. Gleeson is the Henry S. Tack Professor in the Department of Mechanical Engineering and Materials Science at the University of Pittsburgh. His primary research focus is on the thermodynamics and kinetics of gas/solid and solid/solid reactions. Particular emphasis is on the high-temperature degradation of metallic alloys and coatings. Related to this, current research interests include active and passive high-temperature oxidation of alloys and coatings; deposition and characterization of metallic coatings; diffusion and thermodynamic treatments of both gas/solid and solid/solid interactions; and structure/property relationships of materials. He is the Editor of the international journal *Oxidation of Metals*. Dr. Gleeson has a B.S. and M.S. in Materials Science and Engineering from the University of Western Ontario in Canada, and a Ph.D. in Materials Science and Engineering from the University of California at Los Angeles. He also completed a post doctoral fellowship at the University of New South Wales in Australia.

J. Stephen Herring, Ph.D.

Dr. Herring is Technical Director, High Temperature Electrolysis, DOE Nuclear Hydrogen Initiative at the Idaho National Laboratory (INL.) He originated concepts and formed a team for the development of solid oxide electrolytic cells. Research has grown to include the use of nuclear heat and electricity for the production of synthetic diesel; jet fuel and gasoline; and the recovery and upgrading of unconventional fossil fuels such as oil sands, oil shale and heavy crude. Previous responsibilities at INL include the evaluation of nuclear designs in conjunction with electrolytic and thermochemical processes for the production of elemental hydrogen and other hydrogen-transport compounds. Dr. Herring received Bachelor of Science degrees with distinction in both mechanical and electrical engineering from the University of Iowa and a Ph.D. in nuclear engineering at the Massachusetts Institute of Technology.

William R. Owens, Ph.D.

Dr. Owens is Vice President of Fossil Energy projects at Princeton Energy Resources International. He has extensive experience in system engineering principles, cost estimation, project economics, environmental control technologies, project management and project control of power generation systems including conventional and emerging technologies. This experience includes fuel cells, turbines, gasifiers, fluidized bed combustors, etc. Dr. Owens' experience includes systems with bituminous coal, anthracite coal and sub-bituminous western coals. He has worked with alternate fuel systems including, natural gas, hydrogen, gasifier fuel-gas, oil, and oil-shale systems. Dr. Owens has provided DOE with detailed support in outreach programs, deregulation of the electric utility industry, and international programs. He has a B.S. from Pennsylvania State University, a M.S. from Drexel University, and a Ph.D. from the University of Maryland. All his degrees are in Mechanical Engineering.

Arthur J. Soinski, Ph.D.

Dr. Soinski is the Team Lead of the Environmentally Preferred Advanced Generation, Public Interest Energy Research Program (PIER) at the California Energy Commission. He is the technical manager of a team of scientists and engineers that fund electricity generation research, development and demonstration (RD&D) projects in an \$83 million/year public benefits program and is responsible for setting program direction, RD&D priorities and goals based on state energy and environmental policy, legislative direction, issues assessments and market needs. The portfolio of EPAG-funded projects includes advanced reciprocating engines, microturbines, industrial turbines, fuel cells, Stirling engines, combined heating, cooling and power systems, and thermochemical fuel reforming. He has a B.S. in Chemistry from the University of Dayton and an M.S. and Ph.D. in Chemistry from the University of California, Berkeley.

James C. Sorensen

Mr. Sorensen is a consultant specializing in the conception and development of clean coal and other energy programs with a focus on Integrated Gasification Combined Cycle (IGCC), Oxy-Fuel Combustion, Gas-To-Liquids (GTL), and Air Separation and Hydrogen/syngas technology. Prior to this, he worked for Air Products and Chemicals both as Director, New Markets and as Director, Gasification and Energy Conversion. While in these positions, his achievements

included developing and selling a \$26 million Ultra Clean Fuels technology development program that was selected by the US Department of Energy (DOE), selling a \$30 million single train separation facility for a 250 mw IGCC power plant, proposing and developing a \$22.5 million fossil fuel R&D program selected by DOE, and leading Air Products effort on a multi-team proposal selected by DOE for a \$180 million Clean Coal Technology award. Mr. Sorensen is the founding chairman of the Gasification Technologies Council. He received a B.S. in Chemical Engineering from the California Institute of Technology and earned a M.S. in Chemical Engineering from Washington State University. Mr. Sorensen also earned a Master of Business Administration in General Management from Harvard Business School.

David C. Thomas, Ph.D

Dr. Thomas is currently a Senior Technical Advisor with Advanced Resources International providing consulting services to industry and government on climate change mitigation technology and policy issues. He has served on the NETL Carbon Sequestration Program Review Board since its inception and edited the Results Volumes from the Carbon Capture Project, a multi-company, multi-national research consortium on CO₂ sequestration. Prior to retiring from BP where he was Manager of CO₂ Mitigation Technology, he held a broad range of positions in BP & Amoco Corporation's technology development, research, management, and strategy development organizations. He worked throughout his career in support of oil exploration and production, refining, and chemicals manufacture as both a technical specialist and research manager. He has followed energy technology development including fuel cells, solar-electric, and wind power as both a personal and professional interest. Dr. Thomas is a founding life member and past president of the Society of Core Analysis. He is a life member of the Society of Petroleum Engineers and a 40 year member of the American Chemical Society.

Dr. Thomas holds a PhD in Physical Chemistry from the University of Oklahoma, a MS in Inorganic Chemistry from the University of Akron and a BS in Chemistry from Baker University. His area of specialization within physical chemistry was surface and interfacial reactions. He has published over 45 papers and 5 patents.

Michael R. von Spakovsky, Ph.D

Dr. von Spakovsky is a professor of mechanical engineering and director of the Center for Energy Systems Research at the Virginia Polytechnic Institute and State University. He teaches undergraduate and graduate level courses in thermodynamics, kinetic theory, fuel cell systems, and energy system design. His research interests include computational methods for modeling and optimizing complex energy systems; methodological approaches for integrated synthesis, design, operation, control, and diagnosis of such systems; and fuel cell applications for both transportation and distributed power generation. He is Associate Editor for the *ASME International Journal of Fuel Cell Science and Technology* and an ASME Fellow. He is also Editor-in-Chief of the *International Journal of Thermodynamics* as well as Chairman of the Executive Committee of the International Center for Applied Thermodynamics. He received a B.S. in aerospace engineering from Auburn University and a M.S. and Ph.D. in mechanical engineering from the Georgia Institute of Technology.