

SOFC R&D

WEDNESDAY, NOVEMBER 6 - ROOM 101-B, 1:30 PM - 3:30 PM

- **Progress in the U.S. Department of Energy Office of Fossil Energy's Solid Oxide Fuel Cell Program** - *Shailesh Vora, U.S. Department of Energy*
 - The U.S. Department of Energy Office of Fossil Energy (FE) National Energy Technology Laboratory (NETL) Solid Oxide Fuel Cell (SOFC) Program is committed to developing efficient, low-cost electricity from natural gas for MWe-class distributed generation applications in the near-term. In the long-term, the Program is focused on natural gas and coal based central power generation applications with carbon capture; maintaining cell development and core technology research to increase the reliability, robustness, and durability of cell, stack, and system technology; and providing the technology base to permit cost-competitive distributed generation applications. The progress of these activities, along with the status of the program's integrated systems tests and the roadmap to deploy a MWe-class natural gas-fueled distributed generation system, will be presented.
- **Solid Oxide Fuel Cell Development at Pacific Northwest National Laboratory** – *John Hardy, Pacific Northwest National Laboratory*
 - Pacific Northwest National Laboratory (PNNL), a U.S. Department of Energy (DOE) laboratory, is working with government agencies and industrial collaborators to accelerate the commercialization of SOFC power systems for distributed and central power applications. This presentation will highlight recent progress in work being performed for the US DOE Office of Fossil Energy's Solid Oxide Fuel Cell program. Topics to be covered include effects of contaminants on electrode performance, improved cell materials, protective interconnect/BOP coatings, design and fabrication of an SOFC stack test platform, and modeling tools to evaluate and optimize SOFC stack and system performance.
- **High Pressure Solid Oxide Fuel Cell Testing at Washington State University** - *Dustin McLarty, Washington State University*
 - As part of the ARPA-E INTEGRATE program WSU's project aims to demonstrate the technical feasibility of a de-coupled fuel cell gas turbine hybrid (dFC-GT) with the capability to exceed 75% fuel-to-electric efficiency operating on domestically sourced natural gas.
- **Study on Coal Syngas Applicability to SOFC Module** - *Shinichi Sakuno, JPOWER*
 - Solid oxide fuel cells (SOFCs) are expected to be applied to Integrated Coal Gasification Fuel Cell Combined Cycle (IGFC). However, most SOFC modules are designed with natural gas as fuel that means SOFC modules are cooled using the internal reforming reaction (endothermic reaction) of natural gas. In this research, a SOFC module manufactured by Mitsubishi Hitachi Power Systems, Ltd. (MHPS) in which a cooler was installed in the recirculation line to

enhance the cooling capacity is installed and power generation performance of the module with assumed gas is verified.

- **Commercialization of the Ceres Power SteelCell® Technology Platforms: Latest Update**
- *Subhasish Mukerjee, Ceres Power*
 - This presentation will summarize the latest technical and commercial progress by Ceres Power on its low-temperature metal-supported SteelCell® technology.
- **Elcogen – Next Generation Solid Oxide Cell and Stack Technology** - *Matti Nojonen, Elcogen*