

Dr. Walter O'Brian - Virginia Tech

Mr. Bruce Cambata and Mr. Matthew Perry - Electric Jet, LLC

Virginia Tech Center for Turbomachinery and Propulsion Research (CTPR)

December 15, 2011 - Virginia Tech Corporate Research Center, Blacksburg, VA at 6:00 PM



### ***Hydrogen Fuel for the Gas Turbines***

Gas Turbines are widely known and applied in many applications. Their light weight and small size make them the choice for aircraft propulsion. In electric power generation, their use is growing as natural gas availability increases. Hydrogen is an excellent fuel for gas turbines, producing no carbon emissions, is endlessly renewable, and available via thermochemical processes using the heat from gas-cooled, high-temperature nuclear reactors.

It's not difficult to burn hydrogen in a gas turbine. Hans von Ohain's first aircraft turbine engine used hydrogen as a fuel. However, burning it so as to produce low NO<sub>x</sub> requires special technology. There is also the ever-present concern about the safety of hydrogen.

The talk addresses the history, gas turbine applications, and results of recent research on hydrogen as a gas turbine fuel. Electric Jet, LLC, a local company, was formed 5 years ago to do research on hydrogen-fueled gas turbines, and has made significant progress in cooperative research with Virginia Tech. Some new technologies involving hydrogen applications will be shown. There will be a video of starting and operating a hydrogen gas turbine, and a lab visit to see the VT/Electric Jet research turbine engine.

Professor Walter F. O'Brien is a faculty member of the Mechanical Engineering Department at Virginia Tech. He has done research and teaching in gas turbine technology for 40 years.

Bruce Cambata is President, and Matthew Perry is Senior Engineer with Electric Jet, LLC, a Blacksburg-based research and development company specializing in gas turbines and hydrogen energy applications.

[Southwest Chapter of ASME](#)

## Central Virginia Chapter of ASME

Meet at the Wikiteria Market & Cafe Dining Room at 6:00 PM, located in the Virginia Tech Research Park near the airport.

1715 Pratt Drive Ste1200

Blacksburg, VA 24060

MapQuest Link: <http://mapq.st/tihIvN>

### **Schedule:**

- Social Hour - 6:00 p.m.
- Dinner - 6:45 p.m.
- Presentation and Tours - 7:30 p.m.
- Adjourn - 8:30 p.m.
- Directions to the [Virginia Tech Corporate Research Center](#)

**COST:** ~\$15 (\$5 for students) includes a box lunch dinner.

Reservations for the meeting must be made by 12 p.m. on Friday, December 9, 2011. Please fill out the registration form below . Please address any questions to [Pascal Brocheny](#) (ANS) or Bill McNown (ASME, [mcnownw2@asme.org](mailto:mcnownw2@asme.org) or 540-965-0686)