

## Ben Franklin Center of Excellence in Structural Health Monitoring 30 June 2010 Meeting at the Penn Stater Conference Center

8:00-8:30 Coffee & registration

8:30-9:00 Welcome & introduction

9:15-11:20 SHM technical presentations (part of USNCTAM symposium, Room 108)

**Ignacio Perez**, John Kinzer, Mike Yu, Bill Frasier, Nam Pham, Office of Naval Research, Naval Air Systems Command, *Rotorcraft structural health and usage monitoring--navy perspective*

**Mark Seaver**, Engin Aktas, Stephen Trickey, Naval Research Laboratory, Izmir Institute of Technology, *Evaluating sensor performance via ROC curves as low energy impacts damage a composite wing*

Nathanael Yoder, **Douglas Adams**, Purdue University, *Robust crack detection in geometrically complex metallic components using vibro-acoustic modulation*

**Aditi Chattopadhyay**, Cristobal Hiche, Arizona State University, *Impact localization and damage estimation on a composite wing using fiber Bragg grating sensors*

11:30-12:30 Lunch

12:30-1:00 Center Update

1:00-1:50 Keynote Presentation, **Paul Zombo**, Seimens Energy, *Advanced NDE tools targeting structural health monitoring and maintenance for the future electricity industry*

1:50-2:10 **William McGill**, Penn State Information Science and Technology, *Probability bounds analysis for fatigue crack growth – and more*

2:10-2:30 **Cliff Lissenden**, Penn State, *Probabilistic fatigue life prediction from guided wave ultrasonic technology SHM*

2:30-2:45 **Guiseppa Nardoni**, I&T Nardoni, *Diffraction echo in standard and advanced ultrasonic techniques TOFD: phased array for sizing defects in welding examination*

2:45-3:00 Break

3:00-4:00 *Matching SHM Technologies with Needs*

4:00-5:00 Advisory board meeting

See [www.esm.psu/shm](http://www.esm.psu/shm) for details, or contact Cliff Lissenden, [Lissenden@psu.edu](mailto:Lissenden@psu.edu)  
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6.8.2010





## KEYNOTE PRESENTATION

Paul Zombo, P.E.  
Manager Gas Turbine Engineering –  
Materials Field & Service Support  
Siemens Energy Inc.  
Orlando, FL

Paul Zombo has been working in the fields of Metallurgy, Failure Analysis and NDE for twenty six years since earning a degree in Metallurgical Engineering. His fields of involvement includes: welding, casting, forging, coating, machining, failure analysis, and composites used in power generation, aerospace, and heavy industry. Work experience includes 19 years at Siemens Power Generation, 4 years at Kennedy Space Center and 5 years at Timken Steel Manufacturing working on turbines, generators, space vehicles, payloads, launch structures, launch support equipment, steel processing, steel finishing, and automation. Paul has accumulated 36 patents & 29 publications in the fields of NDE, in-situ inspection, welding and metallurgy. Paul was recently honored as “Siemens Inventor of the Year 2009” for outstanding innovation.

### ABSTRACT:

This presentation will focus on the role that Structural Health Monitoring, Condition Based and Operation Based Maintenance will play in the future for the electricity industry from the perspective of Siemens Energy, a global supplier of innovative solutions along the entire energy conversion chain. The drivers have been ever-increasing demand, diversification of energy source and the environment which translates into SHM space as: On-Line, minimally intrusive, fast and intuitive NDE systems that yield highly confident damage assessment and field service feedback for Maintenance and Design. Siemens Energy has planned and invested in strategically aligned NDE tool development for the last 10 years. Three of our resulting advanced NDE technologies have been completed recently and will be highlighted.