8:00-8:30 Registration

8:30-8:45 Welcome & introduction

8:45-9:30 Keynote, **Shawn Sheng**, National Renewable Energy Laboratory, *Condition Monitoring of Wind Turbine Drivetrain*

This presentation will focus on the investigation of various wind turbine drivetrain condition-monitoring (CM) techniques based on two 750-kW test wind turbine gearboxes. The investigated CM techniques include stress wave analysis, vibration analysis, real-time oil condition and debris monitoring, and offline oil sample analysis. The motivation for the National Renewable Energy Laboratory (NREL) to initiate a gearbox reliability collaborative (GRC) project and what role CM plays will be discussed. The NREL 2.5-MW dynamometer test rig used in the GRC tests will be introduced. Several tests relevant to the presented CM research will be laid out. Results and observations obtained in this CM research will be highlighted. Some future R&D areas for wind turbine drivetrain CM will also be briefly touched on.

9:30-10:00 **Karl Reichard**, Penn State Applied Research Laboratory, *Small Scale Wind Turbine at Penn State Research and Education*

10:00-10:30 Break

10:30-11:00 **Fabio Semperlotti**, Notre Dame, Steve Conlon, and Ed Smith, Penn State Aerospace Engineering, *Damage Detection in Metallic Structures Using a Structural Intensity Based Approach*

11:30-12:00 **Cliff Lissenden**, Penn State Engineering Science and Mechanics, *SHM Update*

12:00-1:30 Lunch

1:30-2:15 Keynote, **Michael Quarry**, Electric Power Research Institute, *Potential SHM in the Nuclear Power Industry*

As nuclear power plants age, utilities must manage components and assets including buried piping and tanks as well as containment liners. Much of the asset management cost incurs from gaining access to the component, such as structures that are buried, insulated, or embedded inside other structures. Often, components need to remain in-service, and excavation puts other plant assets at risk for damage as well. Structural health monitoring (SHM) offers potential for considerable reduction in the costs of asset management. Several applications and the technology requirements will be discussed along with the industry drivers.

2:15-2:45 **Charles Bakis**, Penn State Engineering Science and Mechanics, *Damage Detection in Glass/Epoxy Composites by Electrical Methods*

2:45-3:15 **Bill Ranson**, Direct Measurements Inc, *Wireless Remote Strain and Crack Sensor*

3:15-3:30 Break

3:30-4:00 *Matching SHM Technologies with Needs Discussion*

4:00-5:00 Board Meeting

See www.esm.psu/shm for details, or contact
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