

# Unique Hardware and Software Data Acquisition and Processing Solutions in a Small Engine Test Cell for Enhanced Kinetic Engine Modeling Accuracy

Michael Bunce - Presenter

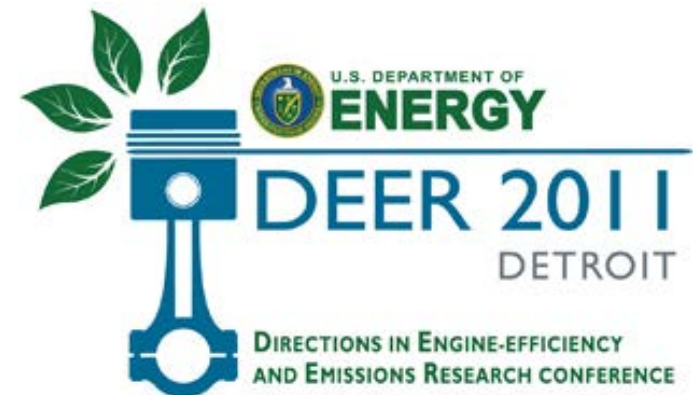
Oak Ridge National Laboratory

Bruce Bunting

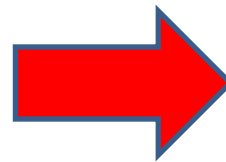
Oak Ridge National Laboratory

Gary Patterson

AVL North America



- Novel use of AVL data acquisition/processing units provides simultaneous real-time acquisition, processing, and storage of low-speed, high-speed, and heat release data
- Cylinder head and engine equipped with additional sensors to most effectively utilize GCA analysis function of AVL Indicom software
- Use of data acquisition system, instrumentation, and GCA analysis tool results in better accuracy in critical parameters input to kinetic engine model



- Residual fraction and content
- In-cylinder mass and temp @ IVC
- Blow-by
- Dynamic compression ratio
- Heat losses: wall, liner, piston