

# Experimental and Theoretical Investigation of Lubricant and Additive Effects on Engine Friction

William F. Rohr

PhD student, mechanical engineering  
The University of Tennessee

Ke Nguyen

The University of Tennessee

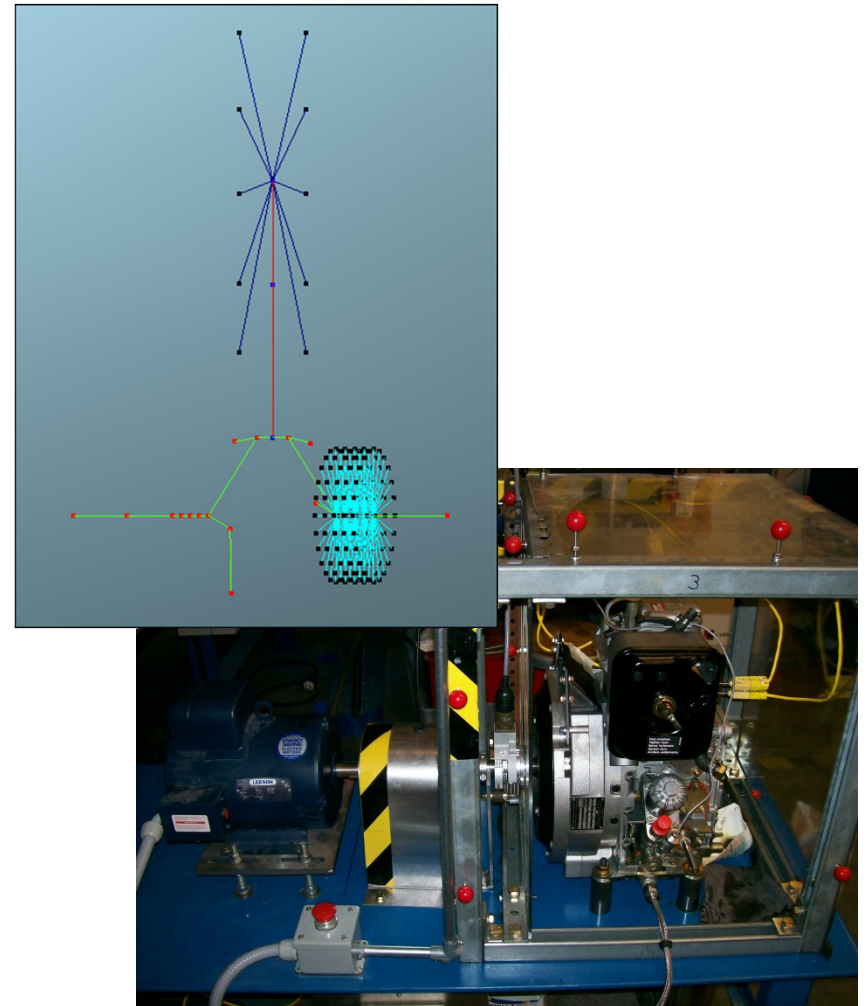
Bruce G. Bunting

Oak Ridge National Laboratory

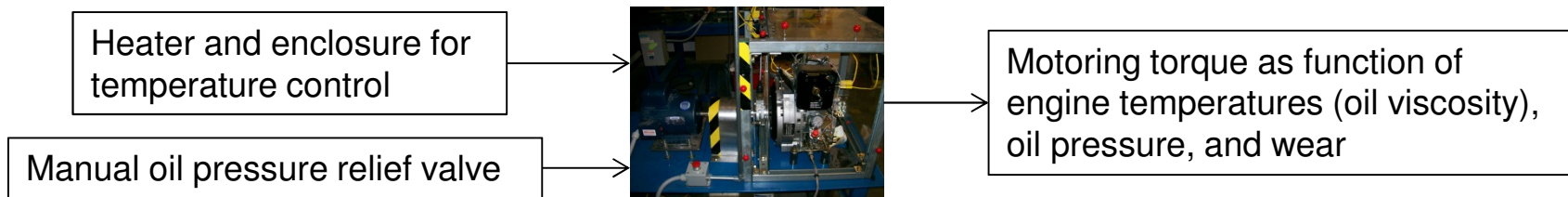
**P - 02**

Thursday

October 18, 2012



- Using motored engine experimental setup in conjunction with computer simulations to examine lube oil performance
- Motored engine setup based on small Hatz 1D50 single cylinder diesel engine
  - Operated over range of engine temperatures and oil pressures
  - Presenting data for base oil, base oil with typical additive, and base oil with “developmental” additive
  - 20 hours motoring time for each, with variety of engine conditions examined



- Computer simulation:
  - Using AVL Excite PowerUnit simulation based on same engine in motored engine setup and Stribeck curves obtained with line contact friction rig
  - Comparing simulation and experimental results

