

Developing knowledge and tools for the power cylinder system of internal combustion engines

The power cylinder system is critical to engine durability, emissions, and efficiency. The development of power cylinder system, composed with piston, rings, liner, and lubricants, is an integral process involving all the suppliers and OEMs, and evolves based on new engine environment, emissions regulation, performance requirements, available technology, and cost. Thus a better understanding of complex interactions in this system and analytical tools are essential to effectively developing an optimized system. This talk introduces our research activities in oil transport visualization using high-speed Two-dimensional Laser-Induced-Fluorescence, friction measurements using Floating Liner Engine (FLE), and corresponding model development at different levels.