

OPTICAL DIAGNOSIS AND MODELING TOOLS APPLIED TO DIESEL HCCI

Cathy Y. Choi
Caterpillar Inc.

Fundamental investigation of diesel homogeneous charge compression ignition (HCCI) has been performed through the use of optical diagnostic techniques and computational modeling tools. An optically accessible engine and a spray visualization rig have been used to characterize HCCI-type combustion and appropriate spray characteristics for charge homogeneity. In parallel, improvements to computational modeling of multidimensional sprays and combustion have been implemented in order to identify potential HCCI-enabling technologies.