

Modeling sentences for landing page.

Modelers at the CRF are developing high-fidelity engine combustion simulation tools and detailed micro-kinetic, surface chemistry modeling tools for catalyst-based exhaust aftertreatment systems. The engine combustion modeling is focused on developing Large Eddy Simulation (LES). LES is being used with closely coupled key target experiments to reveal new understanding of the fundamental processes involved in engine combustion - understanding that would not be possible to obtain by experiments alone. The high-fidelity LES will also help guide the development of a new generation of engineering computational tools for rapidly designing advanced, high-efficiency engine combustion systems. Similarly, the detailed, microkinetic models will provide new understanding of the surface chemistry of catalyst-based after treatment and help enable the development of robust, engineering models for effective aftertreatment system integration into vehicle powertrains.