



APS Research Fuels Engineering Interest

Award-winning research on the characteristics of fuel sprays from injectors is one of the featured articles in the May 2003 issue of *Mechanical Engineering* and on the Web site of that magazine. The studies, carried out at APS's [X-ray Operation and Research](#) beamline 1-BM and the Cornell High Energy Synchrotron Source, revealed startling new information about fuel sprays, including the [presence of a shockwave](#) as the spray leaves the injector nozzle.

Entitled "Penetrating Vision," the article in *Mechanical Engineering*, by associate editor John DeGaspari, notes that "an investigative technique using x-rays is causing engine designers to sit up and take notice." In the article, Scott Parrish, General Motors R&D senior research engineer, notes that "Many applications that involve dense sprays with high flow rates and pressures could benefit from the detailed information" made available by this technique. According to Parrish, the information gained this way "could be of interest to applications such as gas turbines, and agricultural and industrial sprays, as well as diesel and gasoline direct-injection engines."

This research earned a 2002 National Laboratory Combustion & Emissions Control R&D Award from the U.S. Department of Energy.

See: A.G. MacPhee et al., *Science* **295**, 5558, 1261-1263 (2002) and C. F. Powell et al., *J. Synchrotron Rad.* **7**, 356-360, (2000). Address correspondence to: wangj@aps.anl.gov

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