High Temperature Materials Laboratory (HTML) serves as a national center for high-temperature materials research. At the HTML, a multidisciplinary staff investigates new ceramic and alloy materials with potential for high-temperature structural applications. In addition, the HTML functions as an experimental user facility providing industry and university researchers with advanced techniques and instrumentation. For example, the high-temperature flexure test facility in the HTML Mechanical Properties User Center is the first air-cylinder-based, completely computer-controlled flexure strength facility in the world. The HTML with its equipment, staff, and user centers is a critical component in the U.S. effort to compete in the international effort to develop high temperature structural materials.

Ceramic Turbine Rotors

Turbocharged automotive engines have long been recognized as offering distinct advantages over conventional engines, including better performance, increased flexibility in engine design, increased efficiency, and potentially lower costs. A major barrier to automotive market penetration by turbochargers has been the lack of a reliable, low-cost, load-responsive turbocharger rotor that can operate in a very high-temperature environment for extended periods. DOE has sponsored extensive research in the development of ceramic turbine rotors for applications such as turbochargers. Development of a ceramic turbocharger rotor will allow a 66 percent reduction in overall rotor weight, thus resulting in better energy efficiency. Research ac-

The High Temperature Materials Laboratory (HTML), pictured above and located at Oak Ridge National Laboratory, is a center for research on the ability of materials to withstand stress under high temperatures.