produces materials with high specific surface area, which must be accounted for when comparing reactivities of materials prepared by different routes. Overall, compositions such as BaCe$_{0.7}$Zr$_{0.2}$Nd$_{0.1}$O$_3$ provided a good compromise between high stability and high conductivity.

These combinations also show a potential improvement in fuel cell performance, since they allow lower operation temperatures than ZrO$_2$ electrolytes. Doped perovskites oxides obtained with different chemical characteristics will make it possible to obtain a range of materials with competitive conditions to be used in fuel cell applications.

**SIA S. SOSA**

**Infrared Absorption Measurements Confirm the Existence of an Isolated Hydrogen Defect in Proton-Implanted Germanium**

An international research team from the Institute of Physics and Astronomy of Aarhus University in Denmark and the Department of Physics and Astronomy of Vanderbilt University in Nashville, Tennessee has identified the origin of two isotopic lines observed at 745 cm$^{-1}$ and 1794 cm$^{-1}$ in the infrared absorption spectrum of proton-implanted Ge. For the line located on a <111> axis of the Ge lattice, the 745 cm$^{-1}$ line is proportional to the concentration of hydrogen over the whole range covered, while the intensity of the 1794 cm$^{-1}$ line maintains the proportionality just below $2 \times 10^{20}$ cm$^{-3}$, at which it saturates.

From stress measurements and symmetry considerations, the line at 1794 cm$^{-1}$ is attributed to a H$_{2}$ center in Ge. For the line observed at 745 cm$^{-1}$, the measurement seems to support the idea of an isolated H located on a <111> axis of the Ge lattice, and vibrating perpendicularly on this axis, corresponding to an isolated H$^{0}$ near the tetrahedral site. Although predicted by theory more than a decade ago, this work provides direct observation of this isolated hydrogen species in a semiconductor.

**CLAUDIU MUNTELE**

Hänsch Receives ICALEO® 2000 Schawlow Award

Theodore W. Hänsch, director of Max-Planck-Institute for Quantum Optics and professor of physics at the University of Munich, Germany, has been named the Arthur L. Schawlow Award recipient by the Laser Institute of America in recognition of his pioneering research in high resolution laser spectroscopy. He is recognized worldwide as the developer of research techniques of precise laser spectroscopy and the cooling and manipulation of atomic matter with laser light. Hänsch was the Honored Speaker at the Awards Luncheon of the 19th International Congress on Applications of Lasers & Electro-Optics (ICALEO®) held October 2-5 in Dearborn, Michigan.

**Chain T. Liu Receives 2001 Acta Metallurgica Gold Medal**

The 2001 Acta Metallurgica Gold Medal has been awarded to Chain T. Liu, Senior Corporate Fellow at Oak Ridge National Laboratory. Liu is world renowned for his leadership and outstanding achievements in research on ordered intermetallics based on aluminides and silicides. He has played a key role in advancing the science and developing the technology of intermetallic alloys for use as new structural materials. Liu will be presented with the medal on February 13, 2001 in New Orleans during the 130th TMS Annual Meeting.