OF&T session focuses on standards

Eight years of work on international optical standards writing will be reviewed in a half-day session of the Workshop on Optical Fabrication and Testing, to be held during OSA's Annual Meeting. The session, scheduled for Friday morning, Nov. 4, will be devoted to optical standards and work of ISO/TC 172—Optics and Optical Instruments, with six invited papers on various aspects of international optical standardization given by the heads of the committees doing the standards writing work. Handouts of the international draft standards for optical drawings, OTF and environmental testing, and optical thin film coatings will be available.

Hermann Walter, head of Optical R&D at Optische Werke G. Rodenstock and convener of ISO/TC172/SC 1—Fundamental Optical Standards will open the program with an overview and history of the International Standards Organization and the work of TC 172, the technical committee responsible for optical standards. He will be followed by K.J. Rosenbruch of the Physikalisch-Technische Bundesanstalt, convener of Working Group 1, Optical Testing, which has concentrated on OTF testing, veiling glare, and distortion. Then Klaus Hildebrand, head of optical design at Wild Leitz, Ltd., will speak on the work of WG 2, Optical Drawings.

The author, one of the U.S. delegates to ISO/TC 172/SC 1, will describe the work of WG 3, Environmental Testing of Optics, and Thomas J. Loomis of Corning Glass, the U.S. head of SC 3, Optical Materials, will discuss standards for optical glass. This will be followed by Karl Guenther of the University of Central Florida, convener of SC 3/WG 2—Optical Materials/Coatings. Substantial work has been done by this group and a draft standard is largely complete.

A paper by Don Janeczko of Martin Marietta Corp. will address the formalism involved in specifying the roughness of polished surfaces, one of the areas of greatest complexity in this standards writing effort. This should help acquaint attendees with the problems of trying to meaningfully specify the roughness of a surface. The program will conclude with a panel discussion about the new ISO Optical Standards.

The background offered in this session will be useful when it becomes necessary to use and interpret these standards upon adoption in the very near future (for some standards, it will be in the next two years). Although the standards described are international standards, they will become U.S. standards in the areas where this country has no national standards. In optics, this means almost everywhere.

—Robert Parks

Laser action in chromium-doped forsterite

V. Petricevic, S.K. Gayen, and R.R. Alfano of Institute for Ultrafast Spectroscopy and Lasers, CCNY, New York, N.Y.; Kiyoshi Yamagishi, H. Anzai, and Y. Yamaguchi of Mitsui Mining and Smelting Co., Electronic Materials Research Laboratory, Saitama, Japan. Published in the March 28, 1988 issue of Applied Physics Letters.

A team of U.S. and Japanese researchers report the first room temperature vibronic pulsed laser action in trivalent chromium-activated forsterite.

The researchers say laser emission is centered at 1235 nm with a bandwidth of about 22 nm. The spectral range for laser emission is expected to extend from 850 to 1300 nm if the impurity absorption is minimized by improved crystal growth techniques. Emission in this spectral range would make this laser one of the most widely tunable solid-state lasers in this spectral region, the investigators claim.

The single crystal of chromium-activated forsterite used here was a 9 mm × 9mm × 4.5 mm rectangle. The crystal was pumped by a frequency doubled Q-switched Nd:YAG laser operating at 10 Hz repetition rate.

Laser oscillation starts to buildup at an absorbed input energy of 2.2 mJ. The researchers note that the measured slope efficiency of 1.4% is rather low, indicating large losses in the laser cavity.

The large lasing bandwidth of the crystal nevertheless promises ultrashort pulse generation through modelocked operation. The research team adds that the fluorescence lifetime of 15 μsec is suitable for effective energy storage and high-power Q-switched operation.

—George Leopold