

Aluminum and chlorine spontaneously react to form aluminum chloride, a volatile vapor that is removed from the chamber. Cutting occurs only where the laser strikes the aluminum.

Line patching uses a continuous-wave ultraviolet argon ion laser operated at up to 0.4 W, and a reaction chamber filled with a mixture of diborane and silane gases. The laser simultaneously traces and heats a preplanned path over the silicon dioxide insulating layer. When that path reaches a sufficiently high temperature, the silane and diborane spontaneously decompose and conducting polysilicon is deposited. (This deposition technique is similar to processes being used at the Lincoln and Lawrence Livermore National Laboratories.) For more critical tests and for production parts, an additional thin tungsten film can be deposited on the polysilicon line.

MRS



### In Memoriam

Norman L. Peterson, Head of the Department of Metallurgy and Mining Engineering at the University of Illinois, Urbana, died suddenly on April 17, 1986. A Union Carbide fellow at Massachusetts Institute of Technology, he had BSc, MSc, and DSc degrees in metallurgy. From 1961 to 1985, he was employed at Argonne National Laboratory, rising to senior metallurgist and earning a worldwide reputation for his studies of diffusion in solids. He also served as associate director of the Materials Science Division in charge of basic research for nine years, after which he returned to research and headed the Basic Ceramics Group at Argonne. During his distinguished career, he was awarded Ford Foundation, National Science Foundation, and Humboldt fellowships, and was a frequent visitor at European scientific institutions. In November 1985 Peterson joined the University of Illinois to become Head of the Department of Metallurgy and Mining Engineering and to develop a Department of Materials Science.

## Research Resources

*A summary of new products and services for materials research. . .*

**Materials Information:** Materials Information, previously known as Metals Information, is a joint service of the American Society for Metals and The Institute of Metals (London). Materials Information will cover business and technical developments in polymers, ceramics, and composites industries in addition to metals technologies. A new Materials Business File is accessible through several online systems. American Society for Metals, Metals Park, OH 44073; telephone (216) 338-5151, or The Institute for Metals, 1 Carleton House Terrace, London SW1Y 5DB, England; telephone 01-839-4071.

- **Literature Search Service:** Materials Information offers two types of searches for anyone without library or computer facilities: (1) current awareness searches (monthly updates) and (2) retrospective searches (a comprehensive record of all citations for a specified subject area).
- **Directory of Metallurgical Consultants and Translators:** Second edition, published by Materials Information, lists nearly 1,000 consultants and translators with metals-related expertise. Extensively indexed directory lists translators by language and consultants by technical specialty.
- **Source Journals in Metals and Materials:** Third edition of this reference lists over 1,500 scientific, engineering, and trade journals processed for abstracting and indexing by Materials Information.
- **Metadex User Manual:** Third edition of this reference from Materials Information details how to make the best use of the METADEX database on metals and metallurgy.
- **Thesaurus of Metallurgical Terms:** Seventh edition published by Materials Information provides a standardized terminology for metallurgy and related sciences, with main terms and cross references corresponding to the usage in METADEX.
- **Engineered Materials Abstracts:** New monthly publication from Materials Information covers international published literature on polymers, ceramics, and composite materials.

**Programmable R&D Plasma System:** The Microplasmalab addition to Microscience's range of R&D plasma systems features the same modular chamber assembly, electrodes, and vacuum options used in the Plasmalab series together with a new microprocessor-based control system. Microplasmalab can be used for all major plasma processes in-

cluding RIE, PECVD, and planar etch. Microscience, Inc., Forbes Business Center, 182 Forbes Road, Braintree, MA 02184; telephone (617) 849-1952.

**250 MHz FT-NMR Spectrometer:** IBM Instruments' spectrometer provides reliable, high field performance at an affordable price. Excellent automation (including automatic shimming, lock, sample-eject, observe receiver gain, and 120-position sample changer) permits unattended operation for long periods. IBM Instruments Inc., Orchard Park, P.O. Box 3332, Danbury, CT 06810; telephone (203) 796-2500.

**High-Capacity Thermal Analysis System:** Cahn Instruments' TG System 131 is the world's first high-capacity, high-sensitivity, corrosion-resistant system for thermogravimetric analysis. The system features a sample capacity of 100 g, yet it is sensitive to 10 $\mu$ g. Cahn Instruments, Inc., 16207 S. Carmenita Road, Cerritos, CA 90701; telephone (800) 423-6641.

**Chromatography Workstation Programs:** Five software programs for use with the IBM Instruments Chromatography Workstation are outlined in a new brochure. The five programs—Chromatography Applications II (CAP II), Touch and View, Utilities Library, Gel Permeation Chromatography, and GC/9630 Emulation Program—are designed to increase the productivity of the workstation with the 2.0 Operating System. IBM Instruments Inc., Orchard Park, P.O. Box 3332, Danbury, CT 06810; telephone (203) 796-2500.

**Tunable Optical Isolator:** The Model IO-4-IR optical isolator (Faraday rotator) from Optics for Research is a totally self-contained and passive unit for operation with the InGaAsP family of infrared laser diodes. Its tunability is over the 1.2-1.6  $\mu$ m spectral range. Optics for Research, Inc., Box 82, Caldwell, NJ 07006; telephone (201) 228-4480.

**Specimen Exchange System:** The WA Technology specimen exchange system Microscience allows several sample cartridges to be quickly loaded from atmosphere into an exchange chamber and then transferred individually under vacuum into the microscope. Samples can be loaded individually into the microscope in less than one minute. Microscience, Inc., Forbes Business Center, 182 Forbes Road, Braintree, MA 02184; telephone (617) 849-1952.