

RESOURCES

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

Specialty Chemicals, Metals, and Single Crystals:

Catalog describes Ato-mergic's laboratory and research products and services, including over 5,000 high-technology specialty chemicals, metals, and single crystals for universities, research laboratories, and all types of scientific establishments. Products, many high purity, rare or strategic, are available in quantities ranging from grams to tons.

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Chemical Vapor Infiltration: PSI's chemical vapor infiltration (CVI) system, a derivative of CVD, densifies fiber composites for research and production-scale operations. The system improves mechanical, stiffness, corrosion, and oxidation resistance properties with various infiltration coatings including nitrides, carbides, and oxides of silicon, titanium, hafnium, and zirconium.

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Universal Ion Pump Controller: Varian's U8000 universal ion pump controller is compatible with all ion pumps. It automatically selects preprogrammed output voltages, optimizing pumping speed and reducing current leakage. Voltage, current, and polarity can be specified, allowing it to be used in many applications including high-energy physics, molecular beam epitaxy, and analytical instruments. The unit features a color LCD for easy reading. An optional RS232 interface enables users to control several U8000s from one computer and provides two-way remote control and monitoring.

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International Science and Technology Insight:

Publication of the National Science Foundation's Division of International Programs is devoted to information and analysis on science and technology policy and research developments and programs abroad, and international cooperation in science and engineering research and education. The publication is issued seasonally, and the fall 1990 issue (182 pages, 7 articles) focuses on the Soviet Union.

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Multidirectional Sputter Guns:

Kurt J. Lesker Company has announced two new guns with flexible target mountings. High vacuum mounts allow the target's plane to be pivoted over a range of 30° from the axial direction of the source's feedthrough. Torus® 2C-Flex and Torus® 5M-Flex are appropriate for multisource assemblies where the convergence angle must be adjusted to suit the substrate's separation dis-

tance and for experiments in off-axis sputtering effects when making high T_c superconductors.

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Optics Education Programs: Free, comprehensive 1991 directory of optics education programs in North America is designed to assist students seeking the best educational opportunities in this field and serve as a resource for employers. It also includes information about grants and scholarships available through SPIE.

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Optical Materials Journal: New journal from Elsevier, *Optical Materials*, will focus on the design, synthesis, characterization, and application of optical materials and devices. The journal will publish regular papers, review articles, and present results accessible to a multidisciplinary audience of physicists, chemists, and electrical engineers. Volume 1, Number 1 is scheduled to appear in the fall of 1991.

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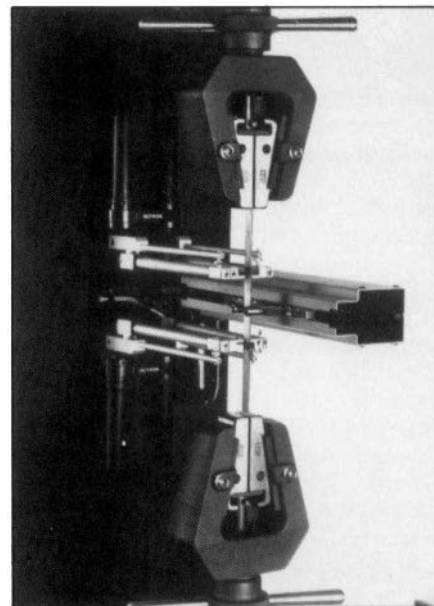
Directory of Advanced Inorganic Composites:

The *International Directory of Advanced Inorganic Composites 1991/1992* gives detailed information concerning the worldwide advanced inorganic composites industry, covering ceramic composites, metal matrix composites, and carbon/carbon composites. The publication lists over 400 manufacturers and suppliers of composites and also includes information from more than 100 universities and research centers engaged in inorganic composites research. The alphabetical format is cross-indexed by composite type. Contact names are provided.

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High Resolution Digital Automated Extensometer:

Instron's high resolution digital (HRD) automated extensometer with the latest digital transducer technology provides fully automated measurement of both short and long travel axial strain, and transverse strain for metals, plastics, and most materials. An air bearing carriage guidance system gives high accuracy and low operating force. Its heart is an HRD transducer with a better than 1.0 μm resolution to accurately measure high modulus materials. The transducer also has a long travel range for more extensible materials and for testing into the plastic region and on to break. With optional heads, transverse strain can be measured at one or three points. The HRD can run either from its own intelligent handset, or under computer control. Automatically controllable functions include the position of the car-



High Resolution Digital Automated Extensometer

riages, calibration of each channel, axial gage length, axial short range, axial long range, transverse range, gripping force, units of measurement, and the language of operation (English, French, German, Italian, or Spanish).

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Elongated High-T_c Superconducting Film for Continuous Level Detection in Liquid Nitrogen:

Lake Shore Cryotronics' new liquid nitrogen level sensor uses thin films of high T_c superconductors on tubes up to 1 m long to monitor liquid nitrogen levels. The material immersed in the nitrogen is superconducting below the liquid level and normal above it, resulting in a proportionately measurable resistance. Based on work done at the University of Basel, Switzerland, the Model 245-LN, offers features that are unique to the management of liquid nitrogen levels in both pressurized and open Dewar systems. The level sensor can be flexed slightly or immersed in hot water, then dunked directly into liquid nitrogen without damage. Unaffected by ice formation and related mechanical problems, the level sensor can be kept in the Dewar for long periods of time. Level monitoring, fill, and alarm control points are managed remotely. A silicon diode temperature sensor can be positioned at the user's discretion to monitor vapor phase temperature. Level and temperature are displayed simultaneously, and the latter can be integrated with the alarm system.

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