

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



**Benchtop FTIR:** Economical Bomem FTIRs are designed for ease of use and high spectroscopic performance. All models have variable resolution and variable speed for different detectors and can be equipped with a built-in microbeam facility. An external output beam and second detector connection permit installation of an IR microscope or other accessory while leaving the main sample compartment free. Models MB100 (350-6,000  $\text{cm}^{-1}$ ) and MB102 (210-5,000  $\text{cm}^{-1}$ ) come with high-intensity air-cooled glowbar sources, sensitive DTGS detectors, and roomy sample compartments. Model MB155, which offers two sources and interchangeable detectors that provide outstanding spectroscopic performance from 450-15,000  $\text{cm}^{-1}$ , may also be used for a combination FTIR/FT-Raman spectrometer system. Model MB160 near-IR FTIR (3,200-15,000  $\text{cm}^{-1}$ ) is suited for method development and implementation for NIR analysis requirements.

**Circle No. 62 on Reader Service Card.**

**Low-Light-Level Non-Intensified Camera:** The CoolView from Photonic Science is a thermoelectrically cooled, video-rate CCD camera that can be switched to slow-scan mode for longer on-chip integration. The CoolView offers bright-field imaging combined with a low-light level for fluorescent imaging. In integrating mode, the camera offers sensitivity of up to 1,000-fold over conventional CCD cameras. The complete system includes a control box, frame grabber, and control card for operation with an IBM-compatible computer.

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**Large-Surface Laboratory Hot Plates:** Lindberg/Blue M's large-surface hot plates offer fast heat up, precision control, and exceptional reliability. Models are available in three sizes ranging from 24×48 in. to 15×96 in. A maximum operating temperature of 700°F is provided by up to

three individual Moldatherm® insulation/heating element modules and ceramic fiber insulation with low thermal mass provides significant savings in energy, time, and maintenance. The unique configuration of helically-coiled heating elements guarantees uniform top-plate temperature. Each element's accurate, stepless electronic control allows users to select an infinite number of variable heat settings within each heating zone.

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#### **High-Speed In-Line CD Metallizer:**

Balzers' CDI 900 uses 50% fewer moving parts than earlier generation metallizers and combines high throughput with easy operation and maintenance. The low-cost CDI 900 offers 10% greater uptime and requires only one square meter of clean room floor space. The device has a fast, three-second cycle time and is available in models that deliver 900 to 1,200 compact discs per hour. The CDI 900 remains under vacuum during target and mask changes, thereby reducing downtime for routine maintenance. The metallizer produces high-quality sputtered films and delivers an excellent film adhesion with fewer defects and minimal risk of contamination. The equipment can be integrated into virtually all production lines due to its universally accessible handling system interface.

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#### **Niobium-Doped SrTiO<sub>3</sub> Single-Crystal Substrates:**

Shinkosha offers two types of mass-produced SrTiO<sub>3</sub> single-crystal substrates doped with niobium. The two low-cost products increase conductivity in superconducting thin films, while lowering power consumption and increasing speed. Problems with doping concentration, changes in resistance due to variations in temperature, Hall concentration, and Hall mobility rates have all been overcome. The crystals have Nb concentrations of 0.5 and 0.05 wt.%, resistances of 0.0065 and 0.08  $\Omega$  cm, and (100) orientation, and are 10 × 10 × 0.5 mm<sup>3</sup> in size. Niobium-doped SrTiO<sub>3</sub> bi-crystals and YSZ bi-crystals are also available.

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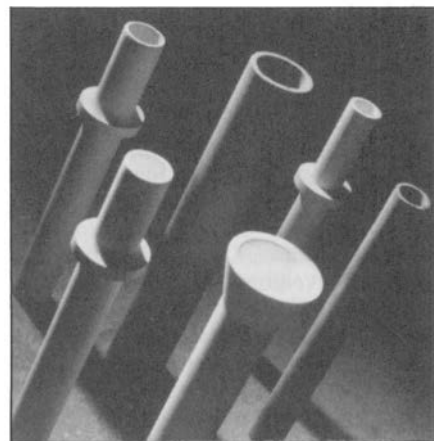
**Biomimicry Journal:** Plenum's quarterly journal, *Biomimetics*, provides a unified forum that addresses biomimicry from the perspective of both biology and materials science. Topics include mechanical and chemical analysis of the design and performance of structural biological materials, development and production of materials based on direct biomimicry, design of novel synthetic materials, applications of "intelligent" materials in areas such as ro-

botics and aerospace, analysis of design criteria used by organisms in selecting specific biosynthetic materials and structures, development of systems modeled on biological analogues, and more.

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**Powder Metallurgy Publications:** The 30-page 1992 catalog from the Metal Powder Industries Federation (MPIF) describes more than 115 publications on powder metallurgy, including technical books, proceedings, textbooks, handbooks, and industry standards published by MPIF and others. Publications span powder injection molding, soft magnetics, parts production technologies, aerospace and advanced materials, mechanical alloying, sintering, hot isostatic pressing, and metal powder atomization. The catalog also describes a home study course, video tapes, and free literature on powder metallurgy.

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**Long-Life Ceramic Ferrules:** Blasch Precision Ceramics' ferrules offer long life in corrosive, erosive, and high-temperature environments. Manufactured in a variety of standard and custom configurations, the ferrules are injection molded to exact dimensions and controlled porosity, and are available in high-purity alumina, silicon carbide, and alumina silicon carbide composite. The ferrules' one-piece construction, with no cemented-on flanges, lowers replacement and maintenance costs while providing thermal shock resistance to eliminate breakage found in fully-dense ceramic ferrules. The ferrules' thin walls and greater inner diameters also result in higher gas flow and increased throughput. Applications include heat exchangers, chemical processing systems, waste incinerators, boiler tubes, and other industrial processes.

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