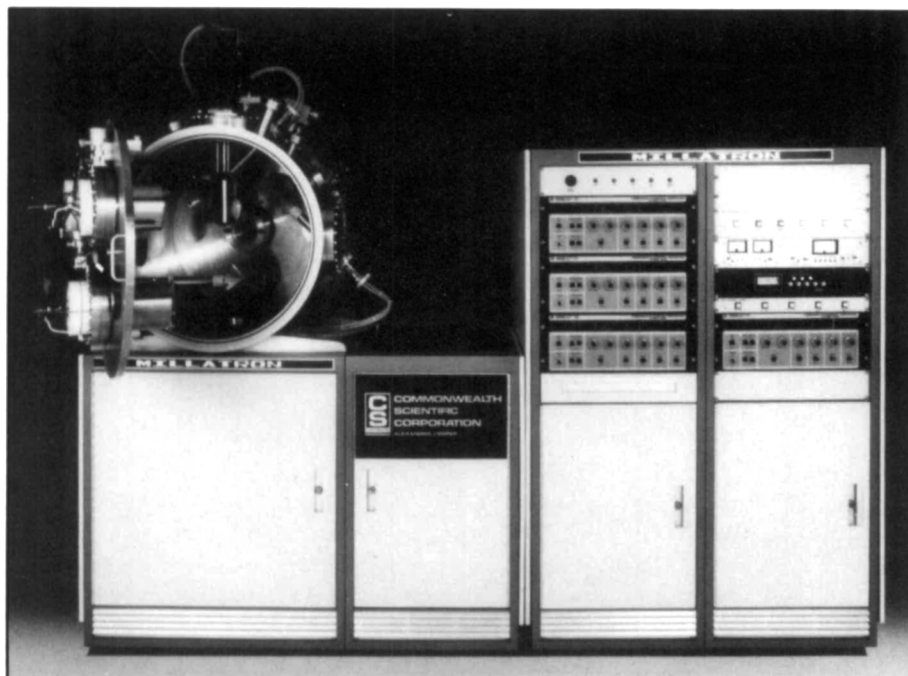


RESEARCH RESOURCES

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



Superconducting Multi-Target Co-Deposition

Superconducting Multi-Target Co-Deposition: New superconductor coating equipment allows simultaneous co-deposition of three different materials on a rotating substrate with controlled stoichiometries. Each material's deposition rate can be independently monitored, and the system ensures formation of materials under low-vacuum conditions and controlled temperatures up to 900°C. Three different ion sources can sputter transfer materials from either six or eight different target materials, while a fourth source precleans and provides *in situ* oxygen enrichment. Commonwealth Scientific Corporation, 500 Pendleton Street, Alexandria, VA 22314; (703) 548-0800.

Superconductivity Sourcebook: Contents cover significant applications, market potential analysis and current status of technology commercialization, and include more than 600 superconductivity-related definitions, acronyms, and reference information (periodicals, journals, conference proceedings, reference books, newsletters, journals, special reports, and video resources). Author is V. Daniel Hunt, Technology Research Corporation. John Wiley & Sons, One Wiley Drive, Somerset, NJ 08873; (201) 469-4400.

Plasma Spray Systems for Superconductive Coatings: Four-page brochure describes complete plasma spray systems for depositing superconductive coatings on bulk materials, including: magnetic shielding, bearings, electromagnetic guns and launchers, energy storage, cyclotrons, microwave cavities, free electron lasers, motors, generators, fusion, field power supplies, propulsion systems, and sputter sources (sprayed coatings and powder). A complete Metco superconductor plasma spray package includes the MNS system, one kilogram of plasma spray powder, a comprehensive training and installation program, ongoing technical support, and continuous technology update reports. Perkin-Elmer Corporation; Superconductor Operations Center, 761 Main Avenue, Norwalk, Connecticut 06859-0205; (203) 762-6971.

Cryostats for Superconductor Cooling: Four-page brochure describes refrigerator cryostats for rapidly cooling high T_c superconductors. Included are product descriptions, photos, performance curves, operation, benefits, and order information. Leybold Vacuum Products, Inc., 5700 Mellon Road, Export, PA 15632; (412) 327-5700.

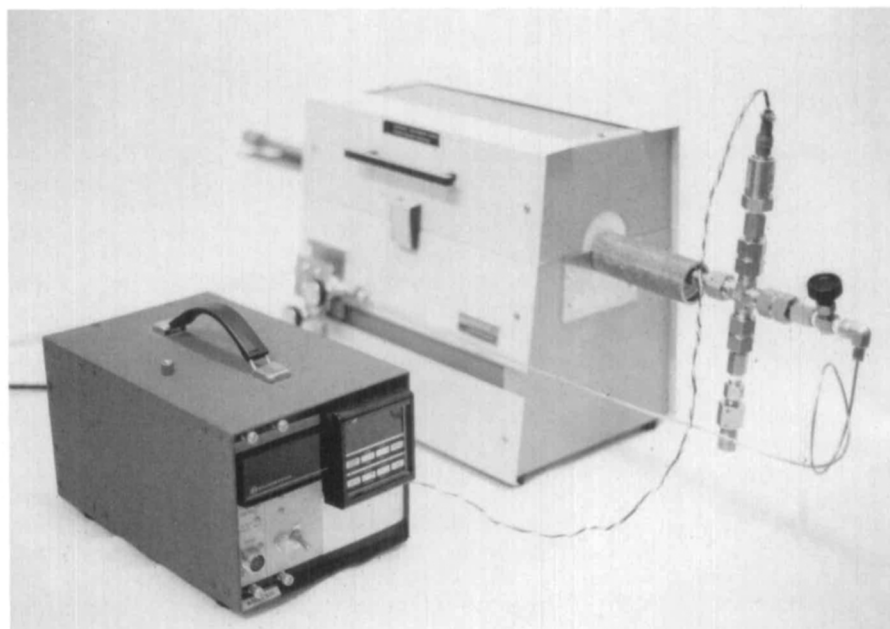
Ion Implantation Software: Software package is designed for the rapid calculation of ion beam interactions with solids. Applications include semiconductor process modeling; modeling of ion beam interactions with surfaces; dynamic recoil mixing and ion-assisted growth techniques; and SIMS, Auger, and RBS depth profiling. System is valid for ion energies from a few eV to a few hundred keV. VG SUSPRE software can run on DEC PDP-11s and IBM PCs and compatibles. VG Ionex, Inc., 32 Commerce Center, Cherry Hill Drive, Danver, MA 01923; (617) 777-8034.

Superconducting Single Crystals: Large Y 1-2-3 and $\text{Bi}_2\text{CaSr}_2\text{Cu}_2\text{O}_x$ crystals are available with zero resistance values up to 85 K for both materials. The 1-2-3 crystals are available in sizes up to 1.5 cm x 1 cm x 0.1 mm. Mixed phase Bi... crystals are grown as long rods and are available in sizes up to 2.5 cm x 4 mm x 0.1 mm, but the largest crystals are comparatively Bi lean and Cu rich. Also available are CuO crystals in sizes up to 1.5 cm x 3 mm x 3 mm, and melt-cast samples which can be formed in various shapes. SuperconIX, Inc., 261 East Fifth Street, Box 31, St. Paul, MN 55101; (612) 222-0046.

Superconductivity Testing Service: Full range of laboratory testing services covers thin films, wires, assorted sintered materials and more. Special microwave absorption "screening test" offers a quick, extremely sensitive means of testing samples as small as 1 mg. This test is selective of true transition phases and produces a well-defined T_c . The sample is measured globally rather than in spots. Results and samples can be returned in 2-3 days with guaranteed confidentiality. Consultation and customized testing are available. Physical Dynamics Incorporated, University of Maryland, Technology Advancement Program, Engineering Research Center, 335 Paint Branch Drive, College Park, MD 20742; (301) 454-8039.

High T_c Superconductor Powder: High purity, high T_c superconductor powder with small particle size distribution and high sinterability is available for commercial sale. Composed of greater than 99% phase pure yttrium barium cuprate, the powder was developed as feedstock for the company's superconducting wire manufacturing program, part of a three-year DARPA-funded program. CPS Superconductor Corporation, 840 Memorial Drive, Cambridge, MA 02139; (617) 354-2020. □

HIGH PRESSURE OXYGEN FURNACE FOR RESEARCH ON HIGH TEMPERATURE SUPERCONDUCTORS



- * *Create new superconductors—stabilize new highly oxidized superconducting phases*
- * *Synthesize new superconductors $YBa_2Cu_3O_8$ and $Y_2Ba_4Cu_7O_{15-x}$ and their rare earth analogues, as polycrystallize bulk, single crystals and thin films*
- * *Oxygen doping of $B_2CaSr_2Cu_2O_{8+x}$ and other high temperature superconductors*

TECHNICAL SPECIFICATIONS:

- Pressures to 300 atmospheres of oxygen
- Temperatures to 980° C
- Temperature control to $\pm 2^\circ$ C; programmable profiles up to 64 steps
- Heating and cooling rates up to 25° C per minute
- Sample space 1 cm diameter x 5 cm length
- Rapid sample change—approximately 10 minutes
- Reliable simple pressure system—gas supplied from standard oxygen cylinder
- System and components pressure rated—tested to 2X max. working pressure
- Electronic pressure gauge with digital readout
- Reliable safety relief valve

MORRIS RESEARCH

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