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BULLETIN

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Applications of High T_c Superconductivity

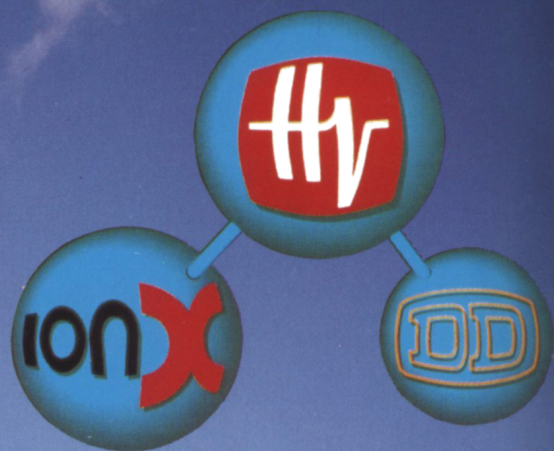


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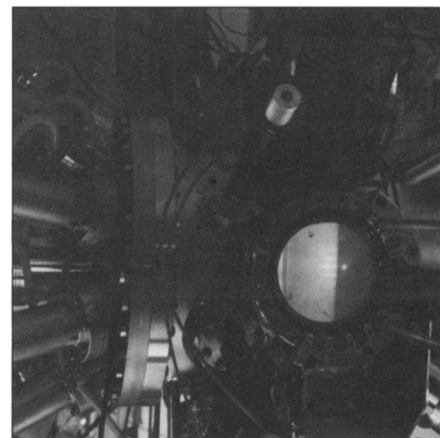
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ON THE COVER: The growth chemistry of artificially structured high T_c superconductors and other complex oxides is studied in real time using reflection high energy electron diffraction patterns seen on the screen at the right. Inside the vacuum system, substrates face the common focus of the thermal effusion sources seen at the left, and the supply of reactant atoms for each atomic layer is accurately sequenced by opening and closing radially arranged beam shutters. Atomic absorption spectroscopy is used on-line for process control. Using such atomic layer-by-layer molecular beam epitaxy, the effects of internal energy and entropy on phase stability can systematically be studied, and metastable phases and ordered heterostructures can be synthesized precisely. For more information, see "Control of Composition and Microstructure in High-Temperature Superconductors at the Atomic Level by Molecular Beam Epitaxy" by J.N. Eckstein et al. on p. 27.

About the Materials Research Society

The Materials Research Society (MRS), a nonprofit scientific association founded in 1973, promotes interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes more than 10,000 scientists, engineers, and research managers from industrial, government, and university research laboratories in the United States and more than 40 countries.

The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across the many technical fields touching materials development. MRS sponsors two major international annual meetings encompassing approximately 50 topical symposia, and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence, conducts short courses, and fosters technical interaction in local geographic regions through Sections and University Chapters.

MRS participates in the international arena of materials research through the International Union of Materials Research Societies (IUMRS). MRS is an affiliate of the American Institute of Physics.

MRS publishes symposium proceedings, *MRS Bulletin*, *Journal of Materials Research*, and other publications related to current research activities.

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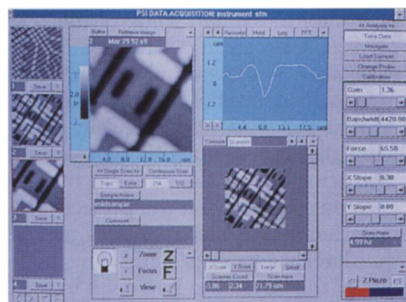
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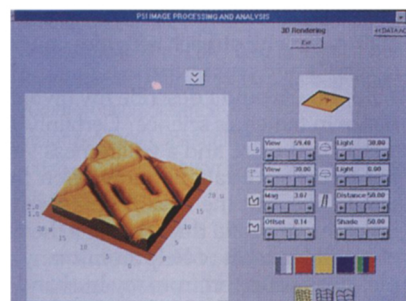
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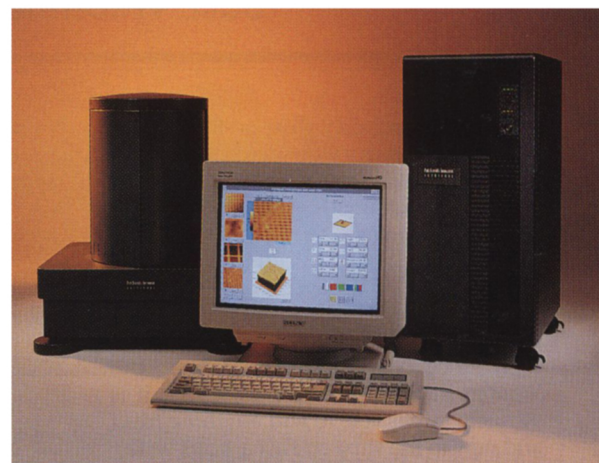


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