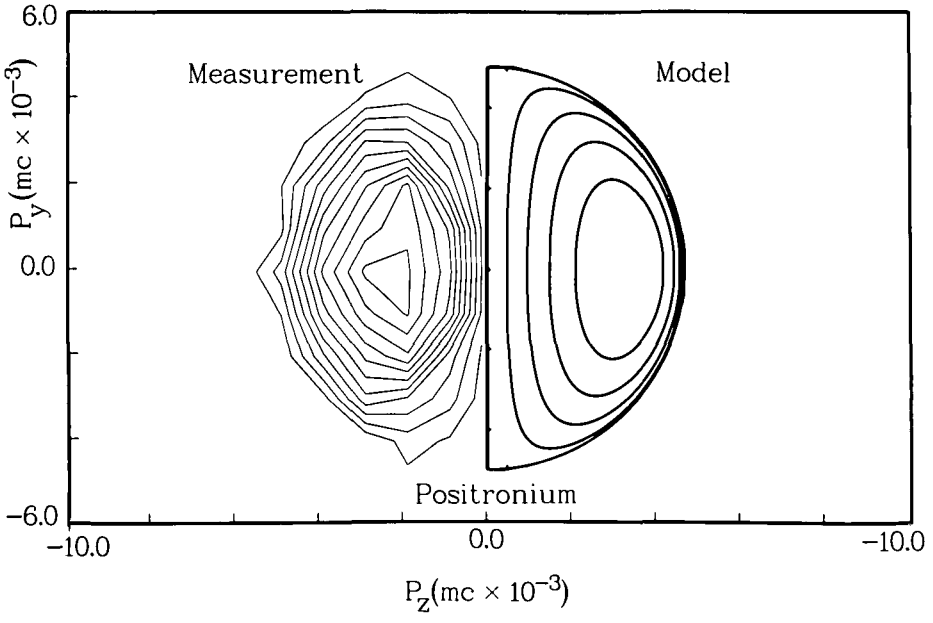
EDITOR'S CHOICE

Figures appearing in the EDITOR'S CHOICE *are those arising from materials research which strike the editor's fancy as being aesthetically appealing and eye-catching. No further criteria are applied and none should be assumed. Submissions of candidate figures are welcome and should include a complete source citation, a photocopy of the report in which it appears [or will appear], and a reproduction-quality original drawing or photograph of the figure in question.*



The EDITOR'S CHOICE for this issue of the BULLETIN arises from the application of a slow positron beam (740 eV) to a near -{121} surface of a copper single crystal and the observation of the momentum distribution of positronium subsequently emitted from the surface. The positronium (a positron-electron pair bound through the Coulomb force in a way analogous to the electron and proton in a hydrogen atom) lives for a short time before the electron and positron annihilate, releasing two 511 keV gamma rays emitted in approximately opposite directions (to conserve momentum). A precise measurement of the angular correlation between the two gamma rays reveals deviations from exactly opposite emission directions which arise from the momentum of the positronium itself. A two-dimensional angular correlation measurement yields the positronium momentum distribution in two directions relative to the surface (+p(z) into the surface, p(y) in the plane of the surface) which can be compared to a model calculation involving assumptions concerning the electron momentum distribution in the metal and the electron-positron interaction in the metal. The figure shows the experimentally derived momentum distribution on the left, as if it were an imperfect reflection about the midplane of the figure of the model prediction on the right. Such data is expected to lead to better understanding of the positron-materials surface interaction and the positronium production process. A complete report of this work can be found in R. H. Howell, P. Meyer, I. J. Rosenberg, and M. J. Fluss, *Phys. Rev. Letters* 54 (1985) 1698. A discussion of this technique as a materials characterization tool can be found in I. J. Rosenberg, R. H. Howell, M. J. Fluss and P. Meyer, **Mat. Res. Soc. Symp. Proc.** 48 (1985) 419.

ERRATA

The EDITOR'S CHOICE figure in the March/April issue of the MRS BULLETIN (page 6), showing a rapidly rotating viscous protoearth, has viscosity on the order of 10^{15} poise.

Research Resources

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

Transparent ABS. Teluran® 2802 TR from BASF Corporation is an acrylonitrile butadiene styrene molding compound that offers an outstanding combination of transparency, toughness, chemical resistance and processability.

Highest Purity, Low Alpha Sputtering Targets. Materials Research Corporation guarantees less than 1 ppb uranium and thorium, less than 0.1 ppm alkalies, and a minimum purity of 99.9995% for ULTRAMARZ™ aluminum and aluminum alloy sputtering targets.

Automatic Wafer Probe. Microscience Inc.'s new type of automatic wafer probe uses twin 16-bit microprocessors to provide a versatile, easy-to-use test station.

1000 Time-Bandwidth Gallium Phosphide Bragg Cell. Advanced modulator produced by Brimrose Corporation has a diffraction efficiency of over 40% at 1 GHz center frequency and bandwidth of 500 MHz.

Geller MicroAnalytical Laboratory. New laboratory in Peabody, MA offers scanning auger spectroscopy to high tech industries.

Dual-Sided Sputter Coater for Quartz Deposition. Materials Research Corporation's Model DS626 Sputtering System features DC or RF sputtering at all six target positions, high uniformity and yield, and computer-controlled operation.

Reactive Ion Etching System. Materials Research Corporation's ARIES™ magnetron-enhanced etcher allows etching with low voltages at low pressures.

Helium Detector. New Inficon Leybold-Heraeus UL 100 self-contained, portable leak detector provides rapid startup and easy use. All controls are in the handpiece; a microprocessor controls valving, tuning and displays.

Motor-Driven Assemblies and Controls. Velmex, Inc.'s 1986 catalog features its entire line of UniSlide® assemblies, including motor-driven rotary tables, linear slides and compatible controls.

Industrial Lasers. Ferranti Industrial Electronics Ltd. offers an extensive range of CO_2 industrial lasers with power levels ranging from 4 to 10 kW. The MF400 is now available as a pulsed laser or as a continuous wave laser. The newest and most innovative laser, a Fast Axial Flow Laser, is a modular system capable of providing from 1 to 7 kW of laser power. A multi-mode version is especially suitable for heat treatment applications.

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