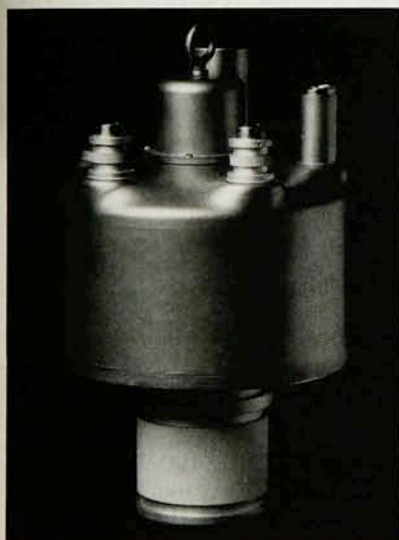


The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Power Amplifier Tube for Accelerators

Burle Industries' Electron Tube Products Division, formerly RCA New Products Division, is offering the Burle 4648, a power tube designed for particle accelerators, radar and a variety of other applications.

The tube is rated as an rf power amplifier in class-C telegraphy service, as a plate-modulated amplifier in class-C telephony service and as a power amplifier in class-B plate-pulsed service. It delivers up to 350 kW of useful cw power output and up



to a megawatt of pulsed output, operating with a power gain up to 28 dB.

The 4648 is a liquid-cooled, beam-power tube of ceramic and metal construction. It employs thoriated-tungsten filaments in a circular array of unit-electron optical systems surrounding a central plate. The 4648 offers high rf power gain with low rf drive voltage. Integral coolant ducts to each electrode provide effective cooling and stability. *Burle Tube Products Division, 1000 New Holland Road, Lancaster, Pennsylvania 17601-5668*

Circle number 140 on Reader Service Card

Compact Turbomolecular Pumping System

The new Leybold TOSS-50 turbomolecular pumping system has a compact and flexible configuration. Designed for hydrocarbon-free, ultra-high-vacuum laboratory and instrumentation applications, the system is lightweight and mobile. The basic system consists of a 1.24-ft³/min Trivac rotary vane pump, a 55-liter/sec Turbovac turbomolecular pump for N₂ and a solid-state converter mounted on a stand. The modular design lets the user add standard components as requirements change. Valves, fittings, tubing and filters can be added quickly, and the height of the turbomolecular pump can be altered to any position along its vertical mounting. The system's ultimate vacuum capacity is 8×10^{-9} mbar. The turbomolecular pump can be removed from the stand to another location.

A free copy of Leybold's new 575-page *Product and Vacuum Technology Reference Book* can be obtained by writing on your letterhead to the firm's marketing service manager. Otherwise use the Reader Service Card number below. *Leybold Vacuum Products, 5700 Mellon Road, Export, Pennsylvania 15632*

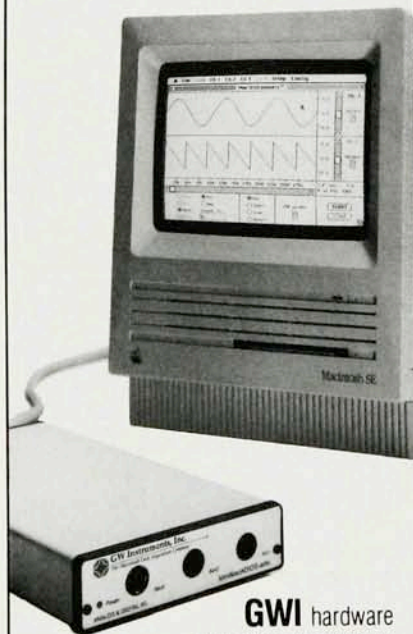
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Polarizers with Very High Transmittance

Optics for Research is now offering polarizers of very high transmittance. These new polarizers consistently transmit more than 98.5% of the incident light intensity, we are told. Yet they still retain high polarization ratios—100 000:1 and beyond.

To achieve this new level of transmittance and polarization, the firm

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analyzed the e-ray behavior in the birefringent crystal, thus making possible a uniquely effective combination of crystal axis orientation and specialized coatings. Several of the polarizers in this new line are, in fact, certified to have a nearly unmeasurable insertion loss.

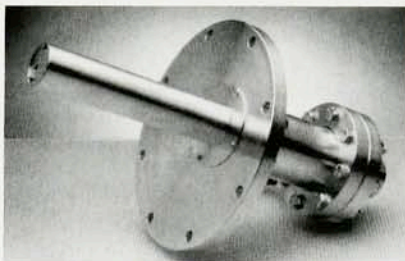
These new polarizers—series PE and PEH—are described on page 31 of the recently published OFR catalog of precision optical components. *Optics for Research, Box 82, Caldwell, New Jersey 07006*

Circle number 142 on Reader Service Card

End-Point Detection in Semiconductor Processing

Hidden Analytical has introduced a new series of end-point detectors for semiconductor processing. The design of these detectors, based on quadrupole mass spectrometry, permits precise determination of material interfaces and accurate control of termination of the etching process—for example with SiO₂ on III-V semiconductors.

For ion-beam milling, reactive-ion



etching or plasma-assisted processing, we are told, these detectors have demonstrated their ability to provide accurate and reliable control of process termination during etching through multilayer semiconductor structures.

These systems are provided with control software and data output displays specifically developed for end-point detection. Outputs include graphical and tabular data displays, analog outputs, trip relays and standard computer interfaces. *Hidden Analytical, 231 Europa Boulevard, Gemini Business Park, Warrington, WA5 5TN England*

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Videodisc of Solar System Voyages

The Voyager Gallery is a 12-inch videodisc (laserdisc) offered by the

Astronomical Society of the Pacific. It contains a wealth of planetary images and short films. Side One has 2700 photographs, diagrams and maps from the Voyager exploration of Jupiter, Saturn and Uranus. Also included are dozens of film clips, showing the rotation of Jupiter's red spot, the spokes in Saturn's rings and a computer-generated three-dimensional tour of Miranda's surface, among other things, as well as an impressive film made from the photos taken by the Giotto spacecraft as it flew past Comet Halley.

Side Two is a visual and sonic grand tour of the solar system, incorporating images from many spacecraft missions plus artist's conceptions, and accompanied by an electronic musical score in digital stereo sound.

The entire disc is indexed frame by frame for easy access. (Side One contains 47 159 frames, including 500 text frames with detailed information.) The package includes a 3½-inch diskette with a complete listing of the images and additional background information. The text is in both MS-DOS- and Pro DOS-compatible ASCII files that can easily be loaded into a word processor or data base program. The price of the two-sided videodisc (VK101) plus the computer diskette is \$95. *Astronomical Society of the Pacific, 390 Ashton Avenue, San Francisco, California 94112-1722*

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High-Vacuum Gauge Control

GFV Associates, a new Boston firm, is offering what it describes as "a new generation of high-vacuum gauge control and measuring instrumentation." The new control Model CT/BA-1 is claimed to improve measuring accuracy by more than an order of magnitude through the use of ionization-gauge tubes. The gauge control operates either the conventional triode or Bayard-Alpert ionization gauge tubes at strictly controlled emission current and bias voltages. One can adjust the gauge-tube sensitivity to conform to the calibration obtained by the orifice-flow method, thus achieving an impressive pressure-measurement accuracy of a few percent.

The CT/BA-1 can operate either a tungsten filament triode tube for high vacuum or a variety of Bayard-Alpert tubes for ultrahigh vacuum approaching 10⁻¹¹ torr. Two standard thermocouple pressure gauges are included

for monitoring forepressure and high vacuum during pump-down.

During measurement of high or ultrahigh vacuum, the emission current is maintained at the prescribed 1.00 mA irrespective of the vacuum. The filament and grid biases are also maintained at prescribed levels. This eliminates a common source of error, because tube calibrations are very



sensitive to changes in operating conditions. The front-panel display provides a digital readout of vacuum or emission current to three significant figures, one figure more, we are told, than most other designs provide. Separate meters provide indications of the thermocouple gauge measurements. *GFV Associates, 52 Louder's Lane, Boston, Massachusetts 02130*

Circle number 145 on Reader Service Card

Palladium Cathodes for Cold Fusion Experiments

The J.M. Ney Company has announced the availability of palladium cathodes of purity exceeding 99.9%, for "cold fusion" experiments. Ney is offering the alloy in shapes specifically developed to specifications from the much discussed paper of Fleischmann, Pons and Hawkins. (See the news story on page 17.) These 1-, 2- and 4-mm rods and 2-mm plates can be delivered within two days. Custom shapes require longer lead times.

The Ney Company has been manufacturing precious metal alloys since 1812. *J. M. Ney Company, Electronics Division, Ney Industrial Park, Bloomfield, Connecticut 06002*

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Rotary-Vane Vacuum Pump for Excimer Laser Sources

The new Sogevac SV16 rotary-vane pump from Leybold Vacuum is designed for evacuating and refilling excimer-laser sources. With pumping speeds as high as 25 m³/hr, this pump can evacuate the laser source down to a few mbar very quickly. The laser

source remains oil free during the evacuation process because port valves prevent backstreaming of oil. The vane and seal materials are resistant to hydrochloric acid and fluorine. The pump is water cooled, and it operates with very little noise. *Leybold Vacuum Products, 5700 Mellon Road, Export, Pennsylvania 15632*

Circle number 147 on Reader Service Card

Soft-X-Ray Spectrometer for Plasma Diagnostics

Princeton X-Ray Laser is offering its new Soxmos soft-x-ray multichannel spectrometer. The manufacturer stresses its 89.3°–87.5° extreme grazing incidence, its high spectral resolution and the versatility of its detection systems. The instrument comes with all optical components interferometrically preadjusted and fine tuned. It does not require readjustment when the interchangeable grating or detector systems are changed.

The basic instrument, Model 2000, is a high-resolution, extreme-grazing-incidence, 2-meter photographic spectrometer covering the spectral region from 5 Å to 400 Å. The spectrometer is preadjusted by the new interferometric Filler-Schwob method, enabling the user to reach the theoretical resolution limit.

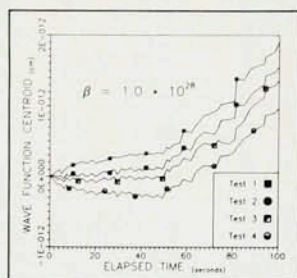
Multiple options permit extension of the basic unit's capability. The instrument can accommodate various ruled or holographic gratings, and it can include an in-vacuum grating-interchange system. With 2400-line/mm grating one gets a spectral resolution of 0.01 Å. A grating with 133 lines/mm extends the covered spectral region to 1500 Å.

Three interchangeable detector systems are available: photographic, monochromatic and multichannel. Two independent detectors can be employed at the same time, with each moved and controlled separately. This feature allows simultaneous measurements in two different spectral regions.

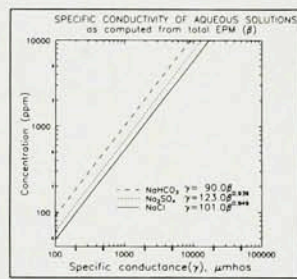
We are told that the Soxmos spectrometer is used for plasma diagnostics at several large tokamaks. It can also be used for research on chemistry, laser-target interaction, spark and plasma devices, atomic physics, beam-foil spectroscopy and so on—wherever high-resolution soft-x-ray and extreme-uv spectrometry are useful. *Princeton X-Ray Laser, Princeton Corporate Plaza, 1-H Deerpark Drive, Monmouth Junction, New Jersey 08852*

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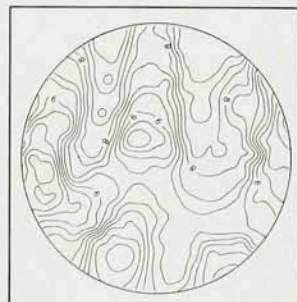
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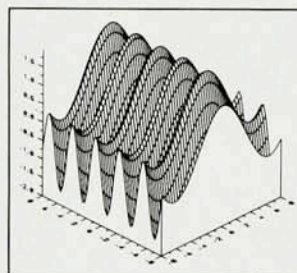
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