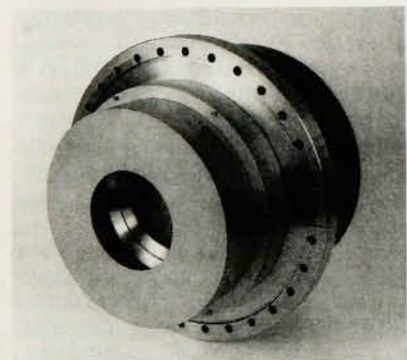


NEW PRODUCTS

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.

Ultra-High-Vacuum Sputtering Gun

Sputtered Films has introduced a new ultra-high-vacuum sputter source. The UHV S-Gun is described as "the only complete magnetron sputtering source of its kind, with an effective central anode." The S-Gun is claimed to provide the highest current-density cathode of any sputtering source. With this gun one can vary and control the potential and temperature of every surface—including shielding.



With effective separation of reactive and inert gases built into the S-Gun anode, this is a complete magnetron system for reactive getter sputtering.

The integrated system of gun and shielding is constructed of ceramic and metal, mounted on a single uhv conflat flange. The unit is vacuum-brazed and heliarc welded, obviating troublesome O-ring seals. Sputtered Films Inc., we are told, invented the S-Gun, the first coaxial magnetron sputter source, in 1965. *Sputtered Films, P.O. Box 4700, 314 Edison Avenue, Santa Barbara, California 93140-4700*

Circle number 140 on Reader Service Card

Cryopump for Fast Semiconductor Processing

Leybold's new model RPK3000S 12 cryopump is designed for semiconduc-

tor processing applications requiring high pumping speeds and high cross-over pressures for water vapor and other gases. These pumps are well suited to serve as retrofitting diffusion pumps in optical-coating and metalizing processes.

The cryopumps are powered by Leybold's new model RGD1245 refrigerator, which provides ample cooling power to both the first and second stages. Thus one gets high pumping speeds, high capacity and high cross-over. The new cryopump comes with a silicon diode. Optional features include digital thermometer with interface and trip relay, purge gas and electrical regeneration system. With its pneumatic displacer, the pump can be serviced in the field. Pumping speeds range from 2700 liters/sec for argon to 10 500 liters/sec for water vapor. The pump capacity for hydrogen is 30 standard liters at 5×10^{-6} Torr. *Leybold Vacuum Products, 5700 Mellon Road, Export, Pennsylvania 15632*

Circle number 141 on Reader Service Card

350-MHz Four-Channel Digital Oscilloscope

LeCroy describes its new Model 9424 digital oscilloscope as "the first portable four-channel oscilloscope to provide more than 100 MHz of bandwidth." The model 9424 has four independent inputs, each with 350-MHz bandwidth, 50K of memory and individual 8-bit flash ADCs. This instrument is claimed to offer "the most advanced trigger and signal-processing capabilities of any portable oscilloscope."

Employing low-noise flash ADCs, the 9424 digitizes repetitive signals at speeds up to 10 gigasamples/sec and single-shot phenomena up to 100 megasamples/sec. Waveforms are presented on a large, high-resolution display that is said to provide a particularly fine and precise trace. LeCroy claims 2% dc accuracy and

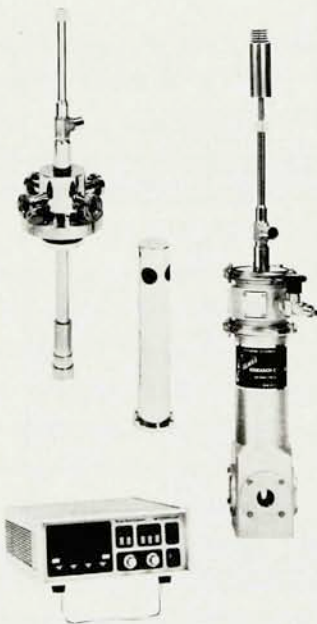
CRYOGENICS

from

Janis

The New Super Tran-B Continuous Flow CRYOSTAT

- Highest Efficiency
- Lowest Ultimate Temperature
- Simplest Operating Turnkey System



Applications in Superconducting Transitions, U.H.V., Device and Wafer Characterization studies. Also DLTS, X-ray, Mössbauer, FT-IR and Visible Spectroscopy.

JANIS RESEARCH CO., INC.

2 Jewel Drive, P.O. Box 696
Wilmington, MA 01887 U.S.A.

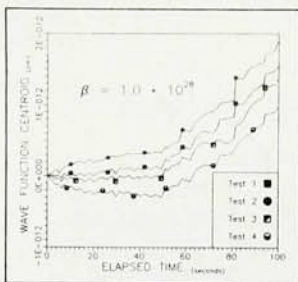
Tel: (508) 657-8750

Fax: (508) 658-0349

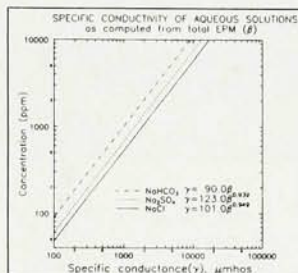
Telex: 200079

Circle number 30 on Reader Service Card

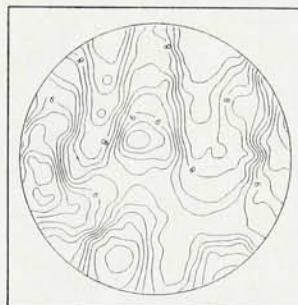
SCIENTIFIC GRAPHICS



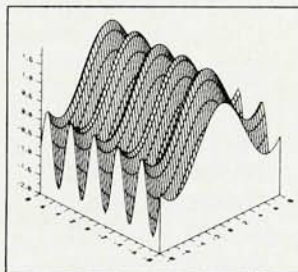
GRAPHER™ accepts your ASCII comma or space delimited file of up to 32000 XY pairs. You may combine an unlimited number of files on each graph. Choose from five types of error bars and six types of best-fit lines. Include automatic legends and unlimited text.



Use any combination of linear and logarithmic axes with automatic or user-specified ticks and labels. Text may contain superscripts, subscripts, and mixed fonts from **GRAPHER™**'s complete symbol library, including Greek letters and special symbols.



SURFER™ creates contour plots from your data quickly and easily. You may specify contour label frequency and format, irregular contour intervals, and data posting. Choose a rectangular border with ticks and labels, or a user-defined shape.



SURFER™ lets you display your data as a 3-D surface in perspective or orthographic projection, rotated and tilted to any degree or angle. Add axes, posting and titles to your plots. Stack surfaces for impressive results.

GRAPHER™ (PC Editor's Choice) ... \$199
SURFER™ (PC Editor's Choice) ... \$499
 Demo Disk ... \$10

FREE Brochure

Go ahead ... give us a call.
 1-800-333-1021
 or (303-279-1021 - fax: 303-279-0909)

GOLDEN SOFTWARE, INC.
 807 14th St., Golden, CO 80401

IBM PC logo and text: Purchase orders are welcome for IBM-PC

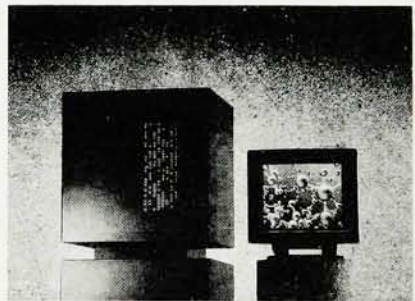
Circle number 31 on Reader Service Card
 80 PHYSICS TODAY JULY 1989

0.001% horizontal resolution, which is useful when one is working with signals that contain small or fast perturbations.

The 9424 offers an extensive range of trigger modes. The usual digital-oscilloscope modes are augmented by logic and timing-based trigger modes. The new Fastglitch and Interval modes can capture spikes, dropouts and glitches down to 2.5 nsec in width. The Pattern trigger is intended for high-speed digital design and test applications. For situations that require noise reduction or extra sensitivity (up to 500 μ V/div), the 9424 lets one perform summation averaging simultaneously on all four channels. An additional 200K of memory is available for processing and storage. Built-in arithmetic, xy mode and pulse-parameter measurements are also included. For signal characterization, up to 10 parameters can be automatically calculated on live, stored or processed waveforms. The price of the Model 9424 is \$20 400. *LeCroy, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499*
 Circle number 142 on Reader Service Card

Smaller Versions of Massively Parallel Supercomputer

Thinking Machines, the manufacturer of the massively parallel Connection Machine, has introduced two new parallel supercomputers, both designated CM-2a. The smaller version, with 4096 individual processors, has a peak hardware performance level above 1 gigaflop. It is priced starting at \$500 000. The larger version of the



CM-2a, with twice as many processors, has a peak hardware performance level exceeding 2 gigaflops. It is priced, in a fully configured system, at \$1 060 000. The new systems are completely software-compatible with the current line of CM-2 supercomputers. One can regard them as scalable steps toward the fully configured CM-2, with its 64K individual processors connected in a hypercube

configuration.

These new CM-2a systems "dramatically lower the entry price for supercomputing," the manufacturer tells us. "With sustained performance above 500 MFlops for applications such as signal processing, and an entry price of \$500 000, these systems open the door for new users, especially universities, to own their own supercomputer."

The new systems are available in 128-Mbyte and 256-Mbyte configurations. They are designed for use in a wide variety of data-intensive supercomputing applications such as fluid dynamics, quantum chromodynamics, molecular modeling, seismology, image processing and data-base retrieval. *Thinking Machines, 245 First Street, Cambridge, Massachusetts 02142-1214*

Circle number 143 on Reader Service Card

Focused Scanning Ion Beam Sputtering System

Oxford Applied Research has introduced the FIB 100 focused-ion-beam system. This instrument employs a focused scanning ion beam under computer control to image and repair defects *in situ* by means of ion-beam sputtering. One can, for example, repair prototype custom integrated circuits.

The manufacturer stresses the price, "well below the present [typical] million dollar level." This unit is a batch-processing design with a large workpiece table and fast cycling from atmospheric pressure. It is controlled by a 80286 computer control with menu-driven software. The FIB 100 also offers a proprietary localized-deposition facility built into the chamber. We are told that this unit is a new design, not a reconfigured ion lithography and implanting system.

The beam power in an instrument of this type is a million times lower than that of laser "zappers." Less damage is therefore done to sensitive materials. The US agent for the FIB 100 is: *Vacuum Inc., 5541 Central Avenue, Boulder, Colorado 80301*
 Circle number 144 on Reader Service Card

Bias Supply for Germanium Gamma Detectors

EG&G Ortec is offering a new high-voltage bias supply for germanium gamma-ray detectors bias. This new Model 659 is claimed to be the first

supply that protects the internal FET of a high-purity germanium gamma-ray detector during cooldown to liquid nitrogen temperature. Most bias supplies protect Ge detectors during warmup, but not cooldown. Thus a bias can build up before a good vacuum has been achieved, with a resulting blown FET. Detectors that have been in use for several years are particularly susceptible to such an unpleasant and expensive occurrence, we are told.

The new model 659 and 660 supplies contain circuitry designed to eliminate this risk. The Model 659 is a single, 0 to ± 5 kV bias supply in a single-width NIM module. The Model 660 supply saves space and cost with two independent, 0 to ± 5 kV supplies in a single-width NIM. The 10-segment LED displays of these new supplies are clearly visible across a room. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37831-0895*

Circle number 145 on Reader Service Card

Laser Diode Mount with Interchangeable Plates

The new model LDM-4405 from ILX Lightwave is a laboratory quality laser-diode mount with interchangeable mounting plates, unobstructed access to the front of the laser diodes, and a detachable base that can be attached to a standard optical table. One of the two mounting plates is pre-drilled to accommodate a variety of laser packages, including Mitsubishi and Hitachi types E, G and A. The second plate has pre-drilled pilot holes, allowing the user to customize the plate for any laser package. Also included are two 9-pin D-connectors and four binding posts for connection to a current source. The support block lets the user attach accessory equipment of his choice—for example a bias tee network. *ILX Lightwave, P.O. Box 6310, 34368 E. Frontage Road, Bozeman, Montana 59771*

Circle number 146 on Reader Service Card

Joule-Thomson Refrigerator Reaches 68 K with Nitrogen

MMR Technologies has developed a Joule-Thomson refrigerator capable of cooling to 68 K. This new refrigerator operates with gas input pressures from 1100 to 1800 psi. To achieve such low temperatures, it utilizes vacuum assist on the gas-exhaust port.

This new refrigerator, which can be retrofitted to all of the firm's refrigerator systems, is intended to open the temperature regime from 68 K to 85 K to users of MMR nitrogen-gas refrigerator systems. This cooling ability should be useful for studying the new ceramic superconductors at temperatures well below critical. Many materials being developed for infrared sensor systems exhibit marked performance improvement with decreasing temperature below 80 K. For spectroscopic studies, the new refrigerator reaches low temperatures that reduce the excitation of molecular vibrational states and increase their lifetimes, thus yielding simpler optical spectra and narrower lines. *MMR Technologies, 1400 North Shoreline Boulevard, Suite A-5, Mountain View, California 94043-1312*

Circle number 147 on Reader Service Card

Gyrotron-Based Source for Ceramics and Ion Stripping

Varian has developed a new microwave source for advanced ceramic sintering research. Employing a gyrotron, the Model VPS-28/15 produces up to 15 kW output power at 28 GHz. At a cost of \$525 000, this source is said to be much less expensive than previous high-power gyrotron-based systems for fusion use.

Aside from ceramic-materials research, applications of the new microwave source include stripping electrons from heavy atoms in small magnetic-mirror devices called electron-cyclotron-resonant ion sources. Such highly charged ions find uses in high-energy physics and in the surface treatment of metals.

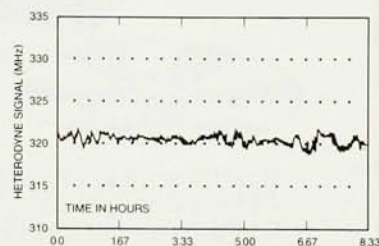
The VPS-28/15 comprises four modules: a high-voltage supply tank, the tube and magnet, magnet power supplies and the control cabinet. This modularity should permit upscaling in frequency for future tube designs in the midpower range. *Varian Microwave Equipment Division, 3200 Patrick Henry Drive, Santa Clara, California 95054*

Circle number 148 on Reader Service Card

Correction

May, page 85—In this department we inadvertently misstated the price of a field-emission scanning electron microscope offered by International Scientific Instruments. The price of the Model DS-130F is \$245 000. ■

The stabilized laser for any application



Frequency over 8 hours

Whether your work requires frequency stability or amplitude stability, you'll find your needs covered by the Model 117A stabilized 1 mW HeNe laser from Spectra-Physics.

Our unique mode selector provides frequency stability of ± 3 MHz over 8 hours or intensity stability with less than 0.4% variation, giving you the flexibility to configure your laser to several applications while enjoying confidence in your results.

For complete product information, contact Spectra-Physics Laser Products Division, Customer Service, 1250 Middlefield Road, Mountain View, CA 94039-7013, or call 1 (800) 227-8054.

Model 117A Stabilized Helium-Neon Laser



Spectra-Physics

Circle number 32 on Reader Service Card