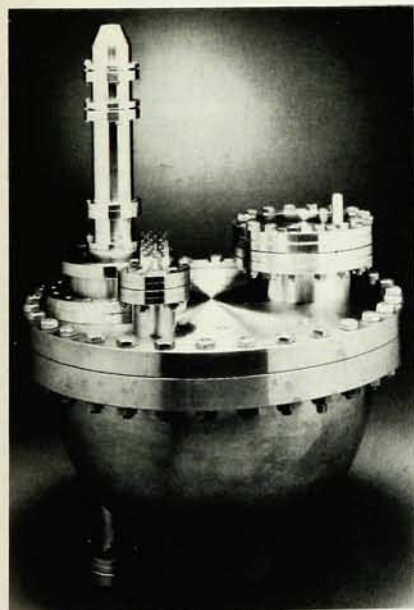


## new products

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.

### Hemispherical analyzer for surface studies

The HA100 from VSW Scientific Instruments is a multitechnique "bolt-on" analyzer for surface studies. It can be used in x-ray photoelectron spectroscopy, Auger-electron spectroscopy, scanning Auger microscopy, electron loss spectroscopy, uv photoelectron spectroscopy and ion-scattering spectroscopy. The analyzer incorporates a new Model 285 lens system. It is a true 180° hemispherical analyzer with optional variable slit geometry for selected-area x-ray photoelectron spectroscopy with up to five user-defined slits or



apertures. A special version of the Model 285 lens system performs small-spot x-ray photoelectron spectrometry with variable magnification.

One can obtain the analyzer either with a single electron multiplier detector or with a discrete-wire multichannel detection system for analytical operation at up to 5000 eV in either

polarity and under complete computer control. The HA100-285 system is available in a standard or customized version and can be fitted to new or existing vacuum equipment. *VSW Scientific Instruments, Warwick Road South, Old Trafford, Manchester, M16 0JT, England*

Circle number 140 on Reader Service Card

### Cesium standard with microprocessor control

Frequency and Time Systems has introduced a new cesium time and frequency standard for which they claim an accuracy of  $7 \times 10^{-12}$  or better. The FTS 4060 contains an auto-alignment feature for locking to the correct cesium resonance during start-up and in the event of perturbations.

The FTS 4060 produces 5- and 10-MHz sinusoidal signals and 1 pulse per second timing signals. Two versions of the unit are available: The FTS 4060/101 version has an optimized 5-MHz signal and the FTS 4060/201 has an optimized 10-MHz output. The warm-up time (time needed to lock to the cesium frequency) of the FTS 4060/201 is 20 minutes.

Available options include 1-MHz and 100-kHz outputs, time-of-day display, battery backup, and an advanced or delayed 1-pps output. *Frequency and Time Systems, 34 Tozer Road, Beverly, Massachusetts 01915*

Circle number 141 on Reader Service Card

### Oscilloscope peripheral for personal computers

Rapid Systems has announced the 4×4, a digital oscilloscope peripheral for the IBM PC, XT or AT and compatible computers. The unit can acquire signals simultaneously through four channels that have impedances of 1 MΩ. Each channel has its own 8-bit analog-digital converter and 32-kilo-

## RMC CRYOSYSTEMS

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# NMR TESLAMETERS HIGH PRECISION



HOUSING: BENCH/NIM/RACK 19"

RANGE : 0.043 T to 13.7 T

RESOLUTION:  $10^{-7}$  T or 1 Hz

INTERFACE : IEEE 488 and RS 232C

OPTIONS : - fully programmable  
- 8 ways multiplexer  
- automatic search  
and tracking on the  
full probe range

## METROLAB

Instruments SA

6, chemin du Clos  
CH-1212 GENEVA (Switzerland)

Tel.: (4122) 94 11 21  
Tlx: 422 008 MTL CH

U.S.A.: GMW (415) 368-4884

Originally designed in CERN

## new products

byte data buffer. One can program the gain independently for each channel in 11 steps ranging from 10 mV to 20 V per division. One can select sampling rates from 0.1 Hz to 500 kHz. The trigger features include user-definable 100% pre- and post-trigger buffer sizes, an analog trigger with level adjustment by a potentiometer and a digital trigger with level adjustment through the software. The unit connects to the micro-computer via a ribbon cable and interface card.

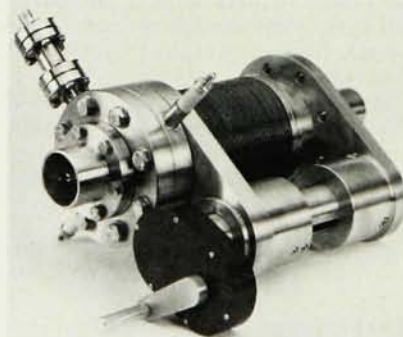
The software is menu driven and produces a color display of  $140 \times 288$  pixels. A zoom feature compresses waveforms up to 2000 times using displayed pseudo time bases. Other software features include a cursor with voltage and time readout, xy display of any two channels, scrolling of waveforms and analysis of phase and time differences with simultaneous acquisition. The unit, including interface card and software, is priced at \$1999. *Rapid Systems, 775 N. Northlake Way, Seattle, Washington 98103*

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## Probes for secondary-ion mass spectroscopy

The HAL S series of SIMS probes from Hidden Analytical are designed for the monitoring of secondary ions generated during ion-beam milling. The probes can be used for end-point detection and target impurity analysis combined with conventional residual-gas analysis.

The probes consist of four components: a secondary-ion energy filter, a residual-gas ion source, a quadrupole



mass filter and an ion-detection system. The secondary-ion energy filter rejects high-energy secondary ions, primary and secondary electrons and neutral particles. Two types of energy filters are available: a Bessel box for axial ion acceptance and a plane-mirror filter for ions that are incident at  $30^\circ$  to the axis of the probe. The ion-detection system is a dual Faraday-electron multiplier

detector with a MOSFET electrometer. The probes operate at pressures up to  $10^{-4}$  torr with electron multiplier detection. The HAL 201S probe is 315 mm long and the HAL 301S probe is 350 mm long; both have a conflat-type flange 115 mm in diameter. *Hidden Analytical, 10 Greys Court, Kingsland Grange, Warrington WA1 4RW, England*

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## Photomultipliers to monitor rock density while drilling

The Thorn EMI photomultipliers Model 9223, 9224 and 9226 are designed to be mounted immediately behind the drill head to monitor rock density in oil-well logging. The photomultipliers have successfully withstood accelerations up to 1000 g and have operated at temperatures up to  $200^\circ\text{C}$  during trials. Rock porosity and density are measured during drilling by monitoring gamma-ray scattering from the rock with photomultipliers; the conditions near the drill head make such rugged devices necessary. *Thorn EMI Electron Tubes, Bury Street, Ruislip, Middlesex HA4 7TA, England*

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## Laser system for processing microelectronic devices

The MEL-40 is a general-purpose laser system from Florod for trimming, drilling, marking and scribing a variety of microelectronic devices, packages and substrates. All four functions can be programmed, allowing the operator to change processes rapidly, we are told. The device can perform active or passive trimming of thin-film and thick-film circuits and scribe on ceramic substrates. One can program the drilling operation from an IBM PC to perform laser trepanning. *Florod Corporation, 17360 South Gramercy Place, Gardena, California 90247*

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## Microscope accessory for high-resolution nmr imaging

An "nmr microscope" is offered by Bruker Instruments. It is a high-resolution microscopic-imaging accessory for the wide-bore AM and MSL systems made by Bruker. The device provides capabilities, for example, for  $T_1/T_2$  imaging, volume-selective spectroscopy, chemical-shift imaging and multi-nuclear imaging—all on a microscopic scale. The complete package includes software and an image processor and,

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we are told, requires almost no modification of the standard spectrometer. *Bruker Instruments, Manning Park, Billerica, Massachusetts 01821*  
**Circle number 146 on Reader Service Card**

## Pulsed lightwave source for fiber optics research

Lasertron has made available the Model QLPX, an ultra-fast optical pulse generator producing high-power pulses of very narrow width. The QLPX can accommodate from one to five laser modules in a Tektronix TM 500 Series module. Each laser can generate simultaneously pulses of less than 100 psec duration. Peak pulsed power from the single-mode output exceeds 6.0 mW at 1300 nm and 2.5 mW at 1550 nm. Multimode outputs are also available. One can specify the wavelength for each laser unit in the 1280-1560-nm



range with a tolerance of  $\pm 5$  nm. *Lasertron, 37 North Avenue, Burlington, Massachusetts 01803*  
**Circle number 147 on Reader Service Card**

## Precision parallel plate glass for optical instruments

Hardin Optical has announced a new line of precision parallel plate glass for such applications as first-surface mirrors, optical windows and holographic substrates. The glass plates are ground and polished flat to  $\frac{1}{4}$  wave per inch and the surfaces are parallel to 0.01%. The plates are available with aluminized surfaces, coated with silica. They can be given super-finished surfaces for photomask applications, special coatings or other custom treatments. *Hardin Optical, P.O. Box 219, Bandon, Oregon 97411*

**Circle number 148 on Reader Service Card**

## Control unit for superconducting magnets

The Model 800 superconducting-magnet power-supply programmer from American Magnetics is a microprocessor-based, modular unit that can interface their magnet power supply to virtually any computer system. The unit communicates with the computer via an RS-232C serial port or an optional

IEEE-488 interface.

One can select local, manual operation or remote, computer operation for control of the magnet charge rate, current limit and current control. One can monitor the magnet current, magnet voltage and charge rate locally or remotely.

The Model 800 is provided mounted in a stand-alone cabinet or with a 19-inch panel for rack mounting. *American Magnetics, P.O. Box 2509, 105 Mitchell Road, Oak Ridge, Tennessee 37831*

**Circle number 149 on Reader Service Card**

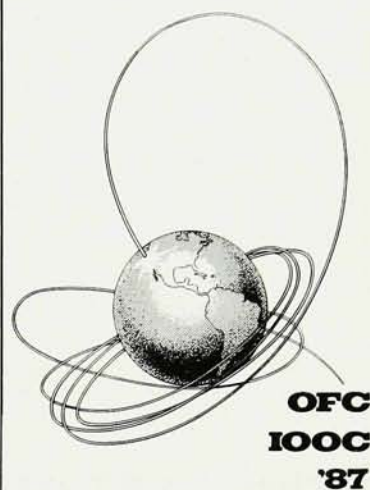
## New software

**Physics**—PHYSICALC from Micro Ware is a scientific calculator program that runs on the IBM PC and compatible computers with 64 kilobytes of memory. The software contains a comprehensive and expandable set of units and physical constants, as well as an algebra system that does unit conversions and keeps track of units during calculations. *Micro Ware, P.O. Box 618G, Honolulu, Hawaii 96818*

**Data analysis**—Chapman & Hall has introduced PC-ISP, an interactive scientific processing package with graphics capabilities that can perform computations on sets of over 10 000 real numbers. The software is array oriented but uses traditional algebraic notation. The program runs on the IBM PC, XT or AT or compatible computers with 640 kilobytes of memory; a math coprocessor is optional but recommended. *Chapman & Hall, 29 West 35th Street, New York, New York 10001*

**Electron optics**—Focussed Software has made available Version 2.0 of its CHDEN package for modeling cylindrical and rectangular electrostatic ion and electron lenses. The program runs on the IBM PC, XT or AT or compatible computers and produces plots of trajectories, axial potentials and charge densities. The program calculates the transit times of the particles through the lens, making it suitable for applications such as time-of-flight mass spectrometry. *Focussed Software, 871 Southgate Drive, State College, Pennsylvania 16801*

**Light and color measurement**—A new software package from Photo Research, the PR-700 PC Toolkit, integrates the IBM PC or compatible computers with Photo Research's SpectraScan automatic scanning spectroradiometers. The software can control the SpectraScan optical head and treat the measured data as well. *Photo Research, 3000 North Hollywood Way, Burbank, California 91505* □



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