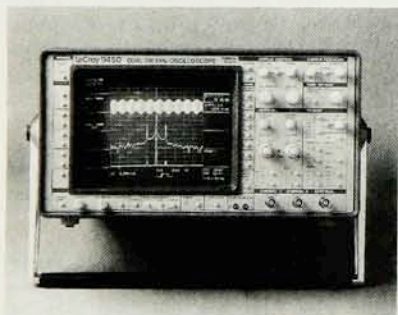


NEW PRODUCTS

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.

FFT Package for High-Performance Scopes

A fast-Fourier-transform package for performing real-time spectrum analysis is now available for LeCroy's line of digital oscilloscopes. The package's design is said to permit calculation of 1000-point fast Fourier transforms in less than 80 msec. The "live" display updates as the signal changes its frequency content. An advanced cursor system gives instantaneous information on frequency, magnitude, power



and phase. The package provides 80 dB of dynamic range and a frequency resolution that is adjustable between 20 μ Hz and 50 MHz. It allows simultaneous time and frequency displays of 350-MHz-bandwidth signals. Frequency information can be transferred to computers via high-speed GPIB ports. The package is standard on LeCroy's Model 7200 oscilloscope and optional for the portable models 9420, 9424 and 9450. *LeCroy, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499*

Circle number 140 on Reader Service Card

Atomic Transition Data on Iron-Group Elements

The US Department of Commerce is offering astrophysicists, combustion and fusion engineers, laser-systems designers and plasma physicists a

new compilation of data on the transition probabilities for atoms and ions of all iron-group elements. Developed by the National Institute of Standards and Technology, the new reference source should be of use in analyzing the properties of plasmas and the performance of hot gaseous systems. The new computerized data file can be stored on a personal computer.

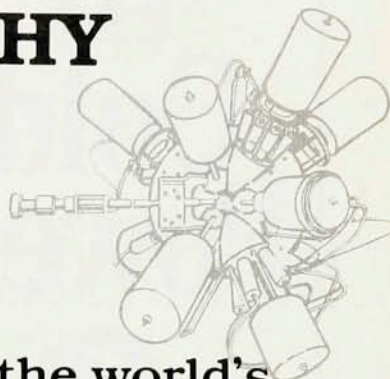
NIST Standard Reference Database 24, *Atomic Transition Probabilities Data File, Scandium Through Nickel*, contains the numerical data for eight transition metals—atomic numbers 21–28—as published in supplements 3 and 4 to volume 17 (1988) of the *Journal of Physical and Chemical Reference Data*. The database holds two types of files: numerical files containing the atomic transition probabilities and spectral identification data, and files of literature references pertaining to the numerical tables. The transition-probabilities file is available on a 3½ or 5¼-inch floppy disk for \$215. It can be stored on the hard disk of any AT- or XT-class PC, and will occupy 4.9 megabytes. The data-file package will include search and retrieval capabilities when these features become available. *Standard Reference Data Program, A323 Physics Building, National Institute of Standards and Technology, Gaithersburg, Maryland 20899*

Circle number 141 on Reader Service Card

Near-Infrared Recording Spectrophotometer

Optometrics's RS-1250 modular near-infrared recording spectrophotometer is intended for spectral analysis in the 750-nm to 1700-nm wavelength range. The unit is said to combine the specifications of a research instrument with the flexibility of modular system. The analysis is "of" some sample "in" that range.

WHY



do the world's
16 leading Spin
Spectrometer
facilities rely on
300 GAMMA-X®
detectors from
EG&G ORTEC?

Why do 4 out of every 5
Ge detectors in spin
spectroscopy arrays
bear the same label?

Why have the world's
most demanding
physicists chosen to
have virtually all their
detector requirements
filled by this **ONE**
company?

Call
Hotline (800) 251-9750

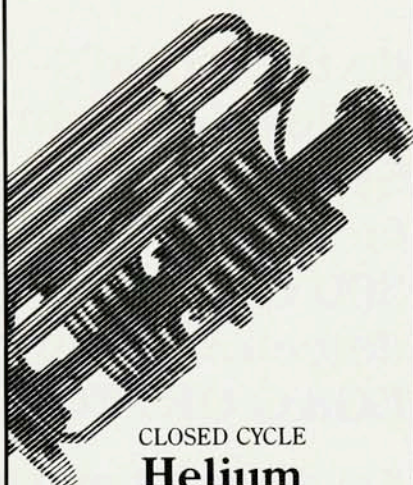
Circle number 41 on Reader Service Card



**EG&G
ORTEC**

100 Midland Road
Oak Ridge, Tennessee 37830
Telephone: (615) 482-4411
Telex: 6843140 EGGOKRE
Fax: (615) 483-0396

4K Cold Power



CLOSED CYCLE

Helium Refrigerators

**.25 Watt,
1 Watt, and
3 Watt Models.**

Complete, turnkey systems incorporating our Series 4000 cryogenic, 3-term temperature controller and a wide variety of sample chambers, vacuum shrouds, and sample holders.

If your application is non-standard, then our engineers will customize a system just for you.

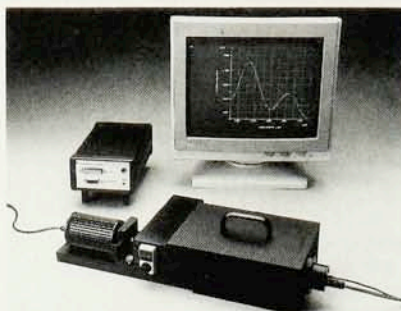
RMC also offers:

- Superinsulated, research helium dewars
- $^3\text{He}/^4\text{He}$ variable temperature cryostats
- Continuous transfer refrigerator systems
- $^3\text{He}/^4\text{He}$ dilution refrigerators

RMC CRYOSYSTEMS

4400 Santarita Ave., Tucson, AZ 85714
(602) 889-7900; TELEX 24-1334
FAX: (602) 741-2200

Circle number 42 on Reader Service Card

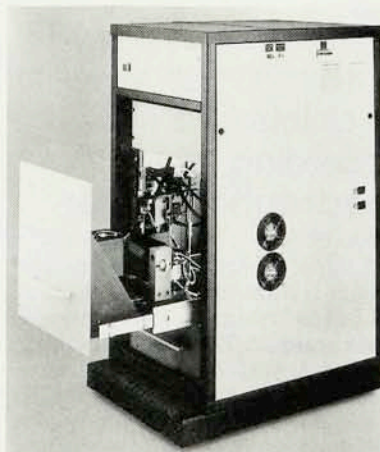


The optical module incorporates an Optometrics scanning digital Mini-Chromo monochromator with an 830-groove/mm grating, a germanium detector, a 20-W source and a sample compartment with 90° and 180° detector ports. The spectral resolution of the RS-1250 is 1.5 nm over its entire range. Other monochromators, detectors and sources from Optometrics can be exchanged for the standard modules. A PC, XT, AT or compatible computer is required. *Optometrics USA, Nemco Way, P.O. Box 699, Ayer, Massachusetts 01432-0699*

Circle number 142 on Reader Service Card

Hall Systems for III-V and II-VI Research

Keithley Instruments has introduced the new Model 925 Hall-effect system and Model 926 Hall-effect profiler. Both are designed for testing the purity of GaAs, III-V and II-VI composites or other samples by measuring carrier concentrations and mobilities. These values are calculated by taking resistivity measurements (using the van der Pauw technique) and Hall-voltage measurements of the bar or wafer samples. Both systems measure 24 points during each cycle, with up to 100 cycles possible per sample. The cycle consists of eight resistivity measurements and four Hall measurements at the positive magnet



pole, followed by eight resistivity and four Hall measurements at the negative pole. Testing in a light-tight chamber protects the sample from photogenerated effects.

The Model 925A is a room-temperature Hall-effect system, whereas the 925B works at both room temperature and 77 K. The Model 926A offers programmable etching capability. The Model 926B additionally offers room temperature and 77K temperature capability.

Key specifications for the two systems include:

- ▷ resistance-level measurements from microhms to more than 10^{10} ohms
- ▷ 10^{14} -ohm input resistance for both current sourcing and voltage measurements
- ▷ less than 50nV noise, using a dc measurement technique that avoids rectification, stray capacitance, and material time-constant errors
- ▷ IEEE-488 bus compatibility.

Menu-driven software (for use with the customer's own PC) is supplied with preprogrammed Hall-effect routines that provide real-time plotting, control and synchronization of measurement cycles, graphics display, analysis and calculations. *Keithley Instruments, 28775 Aurora Road, Cleveland, Ohio 44139*

Circle number 143 on Reader Service Card

Application-Specific Filter Sets

Optometrics has introduced a series of filter sets that are claimed to offer substantial savings for specific applications. Each set comprises nine interference filters. The total out-of-passband radiation (stray light) is less than 0.01% from the uv to 1200 nm. All filters are 1 inch in diameter and are bonded in a ring with epoxy for protection and mounting ease. All are guaranteed for three years. *Optometrics USA, Nemco Way, P.O. Box 699, Ayer, Massachusetts 01432-0699*

Circle number 144 on Reader Service Card

Counting Alpha- and Beta-Active Samples

Canberra has introduced a new alpha-beta counting system—the HT 1000—to increase radioactive counting throughput. The new system is designed for applications requiring long alpha and beta counting times, where the only way to increase throughput is to count more samples at once. The HT 1000 consists of

individual drawers, each containing multiple sample holders and detectors, stacked on top of each other. With a four-drawer system, users can count up to 16 samples simultaneously.

Two sizes of sample holders are available—2 inches and 5 inches. The system's software offers pull-down menus and pop-up windows, but most operations can be performed with a single keystroke. The use of simple sliding drawers rather than a mechanical sample changer make the HT 1000 less susceptible to mechanical failure. Counting multiple samples at once allows one to count more samples at their equilibrium point.

Canberra Industries, One State Street, Meriden, Connecticut 06450
Circle number 145 on Reader Service Card

High-Purity Sputtering Targets

Materials Research's new very-high-purity sputtering targets are available in a variety of popular aluminum alloys. Designed for use in the Eclipse sputtering system, the targets are said to exhibit less than 1 ppm of total metallic impurities, superior alpha-emitter characteristics and a total uranium and thorium content of less than 1 ppb. *Materials Research Corporation, Orangeburg, New York 10962*

Circle number 146 on Reader Service Card

Ti:Sapphire and Nd:YAG Lasers

Spectra-Physics has introduced two enhanced versions of the Model 3900 Ti:Sapphire laser. The new models, numbered 3900S-1 and 3900S-2, deliver 50% more specified output than the earlier Model 3900 and have a purgable, sealed optical cavity for less maintenance and smoother tuning. Both models tune from 675 nm to 1100 nm. Model 3900S-2 provides 750 mW of tunable ir output for a 5-W input and 3.25 W with up to 20 W of pump power.

Spectra-Physics also has introduced its Model 3800S third-generation cw Nd:YAG laser line. The new laser features a redesigned resonator that is said to provide angular and length stability for constant daylong output and mode-locked pulse-width operation. The Model 3800S can be configured in five operating modes: cw; cw Q-switched; mode locked; mode locked and Q-switched; mode locked and pulse compressed. Equipped with the Model 3225 frequency doubler, the



mode-locked 3800S produces a 1.5-W pulse of width less than 70 psec at 532nm. Optical pulse compression reduces the pulse width to less than 3.5 psec.

The Model 3800S is used primarily to synchronously pump the Model 3500 ultrashort-pulse dye laser. This configuration produces continuously tunable light from 575 nm to 880 nm. The output power is specified at 300 mW for a pulse width of less than 5 psec at the peak of rhodamine 6G. Optical pulse compression reduces the width to less than 500 fsec while retaining broad tunability. The output power is specified at 225 mW at the peak of R6G. The pulse width can be further reduced to less than 100 fsec by adding a second stage of optical pulse compression in the output of the dye laser. *Spectra-Physics, Laser Products Division, 1250 West Middlefield Road, P.O. Box 7013, Mountain View, California 94039-7013*

Circle number 147 on Reader Service Card

Research and Pilot-Scale Accelerator

The I-10/1 research and pilot-scale accelerator from Atomic Energy of Canada is an electron-source irradiator with control of energy, exposure and beam distribution. Suitable for process development as well as research, the accelerator uses magnetron-driven short-pulsed technology. The I-10/1 features a 10-MeV electron-beam accelerator and offers treatment rates up to 135 kg/h at 10 kGy (1Mrad). The scanned electron beam allows treatment of products up to 60 cm wide. Operation, control and monitoring can be automated by means of an included programmable industrial process controller. The accelerator has a compact high-voltage and radiofrequency power system, and includes a conveyor speed control that is linked to the beam power.

Atomic Energy of Canada, 436 B Hazeldean Road, Kanata, Ontario K2L 1T9, Canada

Circle number 148 on Reader Service Card ■

HERE'S WHY . . .

the Next Generation of
HIGH-MULTIPLICITY
experiments will
use **GAMMA-X®**
detectors.

EUROGAM, GASP, and GAMMASPHERE will require reverse-electrode detectors three times larger than ever before. EG&G ORTEC is delivering prototype detectors — measuring **under 2 keV with 70% efficiency** — each custom designed for these big experiments.

EG&G ORTEC's most recent GAMMA-X detector measures **98%, 2.1 keV**.

Here's Why demanding physicists choose GAMMA-X detectors:

- A Ge crystal custom-grown for each detector
- On-time delivery of a detector that exceeds specifications
- Special mechanical design requirements smoothly handled
- Convenient neutron-damage repair capability inside each cryostat — no need for factory repair
- A host of quality features that do not appear in anyone's specifications



Call the
Hotline (800) 251-9750
Fax (615) 483-0396

Circle number 43 on Reader Service Card