#### **MARCH 1989**

- 1-3 Top Mtg on Photonic Switching Salt Lake City, UT See issue: 9/88
- 5–18 Automatic Telescopes Tucson, AZ See issue: 1/89
- 6-8 Crystal Structure, Microstructure and Properties of Minerals and Ceramic Materials Contact: O. W. Flörke, Ruhr-Universität Bochum, Postfach 10 21 48, 4630 Bochum 1
- 6-8 Quantum Wells for Optics and Optoelectronics Top Mtg Salt Lake City, UT See issue: 1/89
- 6-9 9th Genl Conf of the Condensed Matter Div of the Eur Physical Soc Nice, France Contact: J. P. Laheurte, Laboratoire de la Matiere Condensee, Universite de Nice, F-06034 Nice Cedex, France
- 6-9 Industry-University Adv Materials Conf Denver, CO See issue: 11/88
- 6-10 Top Mtgs on Quantum Wells for Optics and Optoelectronics, and on Picosecond Electronics and Optoelectronics Salt Lake City, UT See issue: 9/88
- 6–10 Conf on the Sun in Time Monterey, CA See issue: 3/88
- 12-25 NATO Adv Study Inst on Diffusion in Materials; Intl School on Materials and Tech Aussois, France See issue: 9/88
- 13–15 Free Electron Lasers Huntsville, AL See issue: 1/89
- 13–15 Natl Initiative for Sci and Tech Education: Strategies for Change Washington, DC [Amer Med Assoc, AAAS, ADA, IEEE, et al] Contact: Bill Silberg, Sci News Editor [Tel. (312) 645-4417] Amer Med Assoc, 535 North Dearborn St, Chicago, IL 60610
- 13–17 16th EPS Conf on Controlled Fusion and Plasma Phys Venice, Italy Contact: M. Polidoro, ENEA, Centro Ricerche Energia Frascati, C.P. 65
- 13–17 XIV General Assembly of the Eur Geophys Soc Barcelona, Spain See issue: 1/89
- 13-17 20th Ann Lunar and Planetary Sci Conf Houston, TX See issue: 7/88
- 13-17 6th Cong Intl Assoc of Color Buenos Aires, Argentina See issue: 5/88
- 13-17 16th Eur Conf on Controlled Fusion and Plasma Phys Venice, Italy See issue: 1/88
- 15-18 Remote Access Automatic Telescopes Tucson, AZ Contact: R. White, Univ of Arizona
- 20-21 1st Intl Conf on Indium Phosphide and Related Materials for Adv Electronic and Optical Devices Norman, Oklahoma See issue: 1/89
- 20–22 Intl Symp on Magnetoelasticity and Electronic Structure of Transition Metals, Alloys and Films Duisburg, FRG Contact: M. Acet, Univ Duisburg, FB 10— Tieftemperaturphysik, Lotharstr. 1, D-4100 Duisburg 1

- 20-22 4th Intl Conf on Mechanical Properties of Materials at High Rates of Strain Oxford, UK See issue: 9/88
- 20–23 8th Interdisciplinary Surface Sci Conf Liverpool, UK Contact: P. Weightman, Oliver Lodge Lab, Oxford St, POB 147, Liverpool L69 3BX
- 20–24 Wksp on Phys at UNK Protvino, USSR Contact: N. Tyurin, Inst for High Energy Phys, SU-142284 Protvino, Serpukhov, Moskow region
  - **20–24 1989 Regular Mtg of the Div of High Polymer Phys** St. Louis, MO *See issue*: 1/89
  - 20–24 APS March Mtg St. Louis, MO See issue: 5/87
- 26–5 12th Edmond De Rothschild School in Molecular Biophys: Modern Aspects of Halophilism Israel Contact: H. Eisenberg, Polymer Res Dept, Weizmann Inst of Sci, Rehovot 76100, Israel
  - 27–31 SPIE Tech Symp: Active Telescope Systems Orlando, FL See issue: 1/89
  - 27–31 Chapman Conf on Magnetic Flux Ropes Hamilton, Bermuda See issue: 9/88
  - 27-31 Tech Symp on Aerospace Sensing Orlando, FL See issue: 11/88
- 28–29 Tech Open House of the Texas Ctr for Superconductivity Houston, TX Contact: Barbara N. Brown [Tel. (713) 749-3907] TCSUH, Houston, TX 77204-5506

Theoretical Physics

- 28–31 Annl Mtg of Phys Soc of Japan Kanagawa, Japan Contact: PSJ, Rm 211, Kikai-Shinko Bldg, 3-5-8 Shiba-Koen, Minato-Ku, Tokyo 105
- 28–31 Intl Magnetics Conf Washington, DC See issue: 11/88
- 29–31 Mtg on Neutron and X-ray Complementarity UK Contact: R. J. Newport, Phys Lab, Univ of Kent, Canterbury, Kent
- 29–31 Phys at the 18 + Interface: A Cause for Concern? Coventry, UK Contact: Mtgs Officer, The Inst of Phys, 47 Belgrave Square, London SW1X 8QX
  - **30–31 Colorado Microelectronics Conf** Colorado Springs, CO *See issue:* 11/
  - 30–14 Exper Wksp on High-T<sub>C</sub> Superconductors Trieste, Italy See issue: 1/89

#### **APRIL 1989**

- 1-8 1989 Sanibel Symp St. Augustine, FL See issue: 9/88
- 2-6 5th Conf on Low Energy Ion Beams Surrey, UK Contact: The Inst of Phys, [Tel. 01 235 6111] 47 Belgrave Square, London SW1X 8QX [23 Dec. 88]
  - 2-6 30th Exper NMR Spectroscopy Conf Pacific Grove, CA See issue: 11/88
- 2–7 Ann Mtg and AutoCarto IX Baltimore, MD [Amer Soc for Photogrammetry and Remote Sensing, Amer Cong on Surveying and Mapping] Contact: Don Hemenway, Director of Communications

Please note: Complete information is given only for new listings (marked ●) or for newly revised listings (marked Φ). All items previously listed indicate the issue of PHYSICS TODAY that carries the complete listing. The complete listings are coded as follows:

date title location [sponsor] contact [abstract deadline]

§ indicates financial aid may be available for some to attend the meeting.

This calendar appears in alternate (odd-numbered) months. Notices should be sent to: Calendar, PHYSICS TODAY, 335 East 45th Street, New York NY 10017, at least three months in advance.

AAAS	American Association for the	IEEE	Institute of Electrical and Electronics
	Advancement of Science		Engineers
AAPM	American Association of Physicists	IOP	Institute of Physics (London)
	in Medicine	IUPAC	International Union of Pure and
AAPT	American Association of Physics		Applied Chemistry
	Teachers	IUPAP	International Union of Pure and
AAS	American Astronomical Society		Applied Physics
ACA	American Crystallographic Association	LBL	Lawrence Berkeley Laboratory
AGU	American Geophysical Union	LLNL	Lawrence Livermore National
ANS	American Nuclear Society		Laboratory
APS	American Physical Society	MRS	Materials Research Society
ASA	Acoustical Society of America	NAS	National Academy of Sciences
AVS	American Vacuum Society	NBS	National Bureau of Standards
BNL	Brookhaven National Laboratory	NRC	Nuclear Regulatory Commission
CNRS	Centre National de la Recherche	NRL	Naval Research Laboratory
	Scientifique	NSF	National Science Foundation
DOE	Department of Energy	ORNL	Oak Ridge National Laboratory
DPG	Deutsche Physikalische Gesellschaft	OSA	Optical Society of America
EPS	European Physical Society	S of R	Society of Rheology
IAEA	International Atomic Energy Agency	SPIE	International Society for
IAU	International Astronomical Union		Optical Engineering
ICTP	International Centre for	SPS	Society of Physics Students

[Tel. (703) 534-6617] Amer Soc for Photogrammetry and Remote Sensing, 210 Little Falls St, Falls Church, VA 22046

- 3-4 Wksp on the Phys of Hot-Carrier Degradation in Si-MOSFET (Satellite to INFORS'89) Munich, FRG Contact: W. Haensch and W. Weber, Siemens AG, ZT ZFE ME3, Otto-Hahn-Ring 6, D-8000 München 83
- 3-4 1989 Solid State Sci Committee Spring Forum Washington, DC [SSSC and the Natl Materials Advisory Board] Contact: Bill R. Appleton, [Tel. (615) 574-4321] ORNL, P.O. Box 2008, Oak Ridge, TN 37831-6240
- 3-7 3rd Eur Conf on Atomic and Molecular Phys Bordeaux, France Contact:
   A. Salin, ECAMPIII, Univ, Bordeaux I, 351 Cours de la Libération, F-33405 Talence Cedex
- 3–7 Sem on Magnetism Dohma, GDR Contact: K. Elk, Hochschule f. Verkehrs- wesen "Friedrich List," Wissenschaftsber-eich Physik, PSF 103, DDR-8072 Dresden
- 3–7 Intl Conf on 50 Years of Res in Nuclear Fission West Berlin Contact: D. Hilscher, Hahn-Meitner-Institut Berlin GmbH, Postfach 39 01 28, D-1000 Berlin 39

# A NEW APPROACH TO SURFACE SCIENCE.

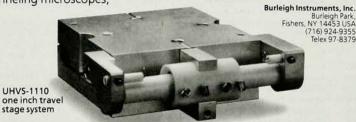
Burleigh's UHV Inchworm® Motor with the "controlled approach" to in-vacuum positioning.

People who do precision positioning inside high vacuum chambers are excited about Burleigh's UHV series, the first in-vacuum linear motor positioning system. Sample or probe positioning for surface science can now be accomplished without cumbersome mechanical feedthroughs. The UHV Series is designed for use in scanning tunneling microscopes,

Auger and ESCA spectrometers, scanning electron microscopes, etc.

- UHV compatible materials.
- In-vacuum operation with remote controller.
- No mechanical feedthrough or bellows.
- A small footprint makes it ideal for close quarters.
- True linear motion.
- Bakeout temperatures to 150°C.
- Micron resolution.

Call or write for more information on Burleigh's *new* Controlled Approach Systems, specifically for STM.





European Headquarters: Burleigh Instruments, GmbH, West Germany, Tel. (06157) 3047; Telex (841) 4191728

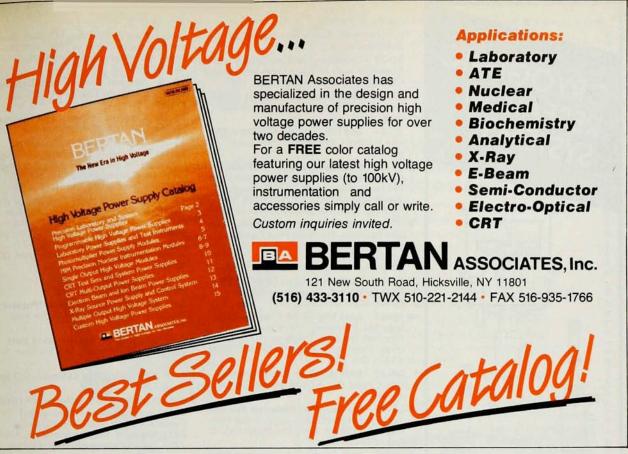
United Kingdom: Burleigh Instruments, Ltd Tel. (0727) 41347; Telex (851) 94011348 Japanese Representative: Marubun Corp. Tel. (03) 6399871; Telex (781) J22803

\*Inchworm is a registered trademark of Burleigh Instruments, Inc

@ Burleigh Instruments, 1988

Circle number 91 on Reader Service Card

- 4-14 Short Course on Phase Transitions in Soft Condensed Matter See issue: 11/88
- 5-6 Recent Advances in Materials Res Carbondale, IL [Materials Tech Ctr, Southern Illinois Univ, Natl Cheng Kung Univ of Tainan, Taiwan] Contact: Margaret Genisio, Industrial/Government Liaison [Tel. (618) 536-7525] Materials Tech Ctr, Southern Illinois Univ, Carbondale, IL 62901-4303
- 5-6 25th Ann Mtg of the Natl Council on Radiation Protection and Measurements Washington, DC See issue: 11/88
- 5-6 The Deep-Sea Bed: Its Phys, Chem and Bio London, UK Contact: The Scientific Mtgs Secretary [Tel. 01-839-5561 ext 278] The Royal Soc, 6 Carlton House Terrace, London SW1Y 5AG
- 5–7 6th Intl Conf on Insulating Films on Semiconductors Garching, FRG Contact: F. Koch, Physik-Dept E 16, Techn. Univ München, D-8046 Garching [15 Jan. 89]
- 5-7 British Crystallographic Assoc Spring Mtg [Univ of Oxford, England] Contact: A. M. Glazer, Clarendon Lab, Univ of Oxford, Parks Rd, Oxford OX1 3PU, England
  - 5-7 Annual Spring Sem and Equipment Exhibit and Wksp on Portal Imaging Las Vegas, NV See issue: 11/88
- 5–7 Nuclear Structure and High-Energy Particle Phys Didcot, UK Contact: Mtgs Officer, The Inst of Phys, 47 Belgrave Square, London SW1X 8QX
- 5–8 Conf of the Southwestern and Rocky Mountain Div, AAAS Las Cruces, NM Contact: Michelle Balcomb [Tel. (303) 945-5516] Executive Officer, SWARM, Colorado Mountain College, 215 Ninth St, Glenwood Springs, CO 81601
- 6-9 Making Science User Friendly Seattle, WA [Natl Sci Teachers Assoc] Contact: Kathleen Holmay [Tel. (301) 588-6168] Public Information Consultant, 2722 Washington Ave, Chevy Chase, MD 20815
- 9–13 19th Annl Intl Symp on Electronic Structure of Solids Holzhau (nr. Dresden), GDR Contact: P. Ziesche, Technische Univ Dresden, Sektion Physik, Mommsenstr. 13, DDR-8027 Dresden
  - 9–14 12th Intl Wksp on Weak Interactions and Neutrinos Kibbutz Ginosar, Israel See issue: 9/88
  - 10–12 Symp on Multi-Element Analytical Techniques Chicago, Illinois See issue: 11/88
- 10–12 Gamma Ray Observatory Sci Wksp Greenbelt, MD Contact: W. N. Johnson, Code 4151, Naval Res Lab, Washington, DC 20375 [10 Feb. 89]
  - 10–13 6th Oxford Conf on Microscopy of Semiconducting Materials Oxford, UK See issue: 9/88
- 10–14 Intl Conf on Computing in High-Energy Phys Oxford, UK Contact: J. Hutchinson, Atlas Ctr, Rutherford Appleton Lab, Chilton, Didcot OX11 0QX
  - 17-16 Spring College on Ceramics and Composite Materials Trieste, Italy See issue: 1/89
- 17-19 Structure and Dynamics of the Interstellar Medium Granada, Spain Contact: G. Tenorio-Tagle, MPI f. Physik



Circle number 92 on Reader Service Card

## MAGNETIC SUSCEPTIBILITY



# Lewis Coll™ Force Magnetometer FOR MATERIALS RESEARCH

· High Sensitivity:

Magnetic Moment to 5×10<sup>-8</sup> Oe·cm<sup>3</sup> (emu) Magnetic Susceptibility to 10<sup>-12</sup> cm<sup>3</sup>/g

- Wide Temperature Range in One Unit;
   2 to 1150 K with low LHe usage
   77 to 1150 K with only LN<sub>2</sub>
- Wide Pressure Range of 10-9 to 1 atm
- Wide Choice of Electromagnets
- Combined Magnetic and Mass Measurements
- Computer Interface for System Automation
- Unique Variable Temperature Capability Particularly Useful for:

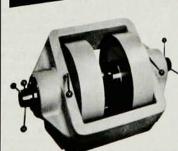
New Superconductor Materials Geological Samples

### GEORGE ASSOCIATES

P.O. Box 960 (415) 843-3587 Berkeley, CA 94701 Cable: MAGSUS

Circle number 93 on Reader Service Card

# LABORATORY ELECTROMAGNETS



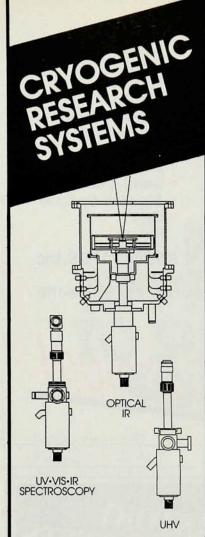
Scientifically
Superior
Laboratory
Electromagnets
by
Walker
Scientific Inc.

With our proven "H" frame design and method of coil

construction, we provide the most scientifically advanced laboratory electromagnets on the market. Variable gap magnets have frames of pure magnet iron, jig-bored pole bores and positive ramp locking. 12 standard models to choose from with a wide selection of associated current and field regulated power supplies.



Worcester, MA 01606 U.S.A.
Telephone: (508) 852-3674 / 853-3232
Toll Free: 1-800-962-4638
TFIC INC. Telex: 9102508517 / FAX (508) 853-3344
Code Name: "MAGNET WOR"



Liquid Transfer Systems
Closed Cycle Refrigerators
Multiple Pin Leadless
Carrier Dewars
Pourfill Dewars
Custom Systems
Engineering/Design
Support
Equipment Rental
Temperature Cycling
Cryogenic Instrumentation
and Sensors

APS Show - Booth #405

#### R.G. HANSEN & ASSOCIATES

631 Chapala Street Santa Barbara, CA 93101 (805) 564-3388 FAX (805) 963-0733

Circle number 95 on Reader Service Card

u. Astorphysik, Karl-Schwarzschild Str. 1, D-8046 Garching

17–20 Chapman Conf on Causes and Consequences of Long-Term Sea Level Change Snowbird, UT See issue: 1/89

17-21 Structure and Dynamics of the Interstellar Medium Granada, Spain See issue: 1/89

17–21 2nd Intl Conf on Nonlinear Optics Ashford Castle, Ireland See issue: 1/89

- 17-21 Nuclear Analytical Methods in the Life Sciences Gaithersburg, MD [Natl Inst for Standards and Tech] Contact: Rolf Zeisler [Tel. (301) 975-6290] B108 Reactor Bldg, NIST, Gaithersburg, MD 20899
- 17–22 3rd Intl Symp on Pion–Nucleon and Nucleon–Nucleon Phys Gatchina, Leningrad, USSR Contact: A. A. Vorobyov, Leningrad Nuclear Phys Inst, SU-188350 Gatchina, Leningrad District

18-21 Conf on Oxygen Disorder Effects in High-T<sub>C</sub> Superconductors
Trieste, Italy See issue: 1/89

 19–21 Annl Mtg of the German Rheology Soc Darmstadt, FRG Contact: Kurt Kirschke, Deutsche Rheologische Gesellschaft, Unter den Eichen 87, D-1000 Berlin 45 [15 Oct. 88]

**20–22 10th Wksp on Grand Unification** Chapel Hill, North Carolina *See issue*: 11/88

- 23–26 Ion Beams in Materials Res and Tech Bad Honnef, FRG Contact: Eur Physical Soc, POB 69, CH-1213 Petit-Lancy 2, Switzerland
- 24–25 Tech Update on Diamond Films San Diego, CA Contact: R. P. H. Chang [Tel. (312) 491-3598] Dept of Materials Sci and Eng, Tech Inst, Northwestern Univ, Evanston, IL 60208 [15 Feb. 89]
- 24–28 2nd Ann Electronic Materials & Processing Cong Philadelphia, PA [Amer Soc of Metals Intl] Contact: George A. Mentzer, (216) 338-5151 Communications Officer, ASM Intl, Metals Park, OH 44073

24–28 Intl Cong on Optical Sci and Eng Paris, France See issue: 1/89

24-28 X-Ray Instrumentation in Medicine, Biology, Plasma Phys, Astrophys, and Synchrotron Radiation (10 eV-40 keV) Paris, France See issue: 1/89

24–28 9th Eur Symp on Optoelectronics Paris, France See issue: 1/89

24–28 5th Eur Conf on Integrated Optics Paris, France See issue: 1/89

24–28 IAU Colloq 116: Comets in the Post-Halley Era Bamberg, FRG See issue: 1/89

24-28 Symp on Quantum Fluids and Solids Gainesville, FL See issue: 11/88

**24–28 CLEO '89: Conf on Lasers and Electro-optics** Baltimore, MD *See issue:* 7/87

**24–28 IQEC '89: Intl Quantum Electronics Conf** Baltimore, MD *See issue:* 7/87

24–29 MRS Spring Mtg San Diego, CA See issue: 11/88

- 25–27 Fibre Optics '89 London, UK Contact: Conf Office, Sira Ltd, South Hill, Chislehurst, BR7 5EH
- 26–28 Advances in Computed Tomography and Magnetic Resonance Imaging Ann Arbor, MI [Univ of Michigan Med

School, Dept of Radiology] Contact: News and Information Services [Tel. (313) 764-7260] 412 Maynard, Ann Arbor, MI 48109-1399

26–28 2nd Intl Conf on High-Density Z-Pinches Laguna Beach, CA See issue: 11/88

26–28 Conf on 50 Years with Nuclear Fission Gaithersburg, MD See issue: 5/88

- O 28–29 2nd Intl Symp on Aneutronic Power Washington, DC Contact: Bogdan Maglich, [Tel. (609) 275-7337] Adv Phys Corp, 14 Washington Rd, Bldg #6, Princeton Junction, NJ 08550 [8 Jan. 89]
- 30–5 Issues in Sci and Tech Policy Williamsburg, VA [The Brookings Institution, Ctr for Public Policy Education] Contact: Stan Wellborn, (202) 797-6105, Public Affairs Director, the Brookings Inst, 1775 Massachusetts Ave, NW, Washington, DC 20036

#### **MAY 1989**

1–3 8th Top Conf on Radio-Frequency Power in Plasmas Irvine, CA See issue: 1/89

1-3 Top Mtg on Tunable Solid State Lasers North Falmouth, MA See issue: 9/ 88

1–4 APS Spring Mtg Baltimore, MD See issue: 7/87

- 2-4 Aerospace '89 Arlington, VA [Amer Inst of Aeronautics and Astronautics] Contact: Clifford Beal, [Tel. (202) 646-7432] Manager, Public Information, AIAA, 370 L'Enfant Promenade, SW, Washington, DC 20024
- 4-6 3rd Canadian Conf on General Relativity and Relativistic Astrophys Univ of Victoria, Victoria, B.C. Contact: F.I. Cooperstock, Dept of Phys, Univ of Victoria, Victoria, B.C., Canada V8W 2Y2
- 4–6 Current Issues in Elementary Particle Phys Batavia, IL Contact: Deborah Booth [Tel. (815) 753-6913] College of Continuing Education, NIU

7–12 Symp on High-T<sub>c</sub> Superconductor Technologies at the 175th Mtg Electrochemical Soc Los Angeles, CA See issue: 11/88

- 8–10 Consensus Conf on Effects of Ultraviolet Radiation on the Skin Bethesda, MD [Natl Inst of Arthritis and Musculoskeletal and Skin Diseases, Natl Cancer Inst, NIH Office of Med Applications of Res, FDA, EPA] Contact: Michael Bernstein, [Tel. (301) 395-1143] Director of Communications, Office of Med Applications of Res, Natl Inst of Health, Bldg 1, Room 259, 9000 Rockville Pike, Bethesda, MD 20892
- 8-11 5th Eur Wksp on Molecular Spectroscopy and Photon-Induced Dynamics Wegimont, Soumagne, Belgium Contact: Inst de Chimie, Univ de Liège, B.6, B-4000 Liège 1 [31 Jan. 89]

8–12 AGU Spring Mtg Baltimore, MD See issue: 7/87

- 8-12 12th Intl Conf on Cyclotrons and Their Applications West Berlin Contact: G. Liar de Martin, Hahn-Meitner-Inst Berlin GmbH, Postfach 390128, D-1000 Berlin 39
- 8–19 Opt Eng Short Courses Tucson, AZ Contact: Opt Systems and Eng Short Courses, Inc [Tel. (602) 885-3798] P. O. Box 18667, Tucson, AZ 85731

# Get Rid of LN<sub>2</sub> Cylinder Handling...



#### ELECTROMAGNETICS CAD

Circle number 96 on Reader Service Card

## MAG-PC

MAG-PC is a three-dimensional magnetic fields solution program for PC's. It is ideal for experimenting with various coll configurations. Applications include: high energy physics, focussing systems, and superconducting magnets.

# fast analysis...

MAG-PC is inexpensive, fast, and dependable. It requires no computer expertise to use effectively. MAG-PC installs in ten minutes, and it includes 3 samples and a tutorial. One hour is sufficient time to become familiar with MAG-PC.

## using MAG-PC...

Using cursor keys and menus, you can enter coils of any shape anywhere in 3D space. After you choose the region to be analyzed, MAG-PC provides the results. These can be displayed graphically or in tables. In addition, output can be sent to an ASCII file for use in other programs or to a printer.

Standard (pre-set accuracy, no coil preview): \$489 US Enhanced (user defined accuracy, coil preview: \$899 US MAG-PC is not copy protected, includes manual and application samples. Requires 256k, math co-processor, and CGA. Phone in your order today.



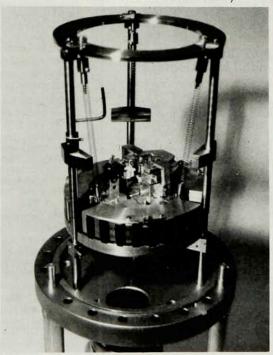
corporation
(514) 849-8752

1140 De Maisonneuve Suite 1160, Montreal, Canada H3A1M8
Circle number 97 on Reader Service Card

Instruments for Surface Science

#### UHV Scanning Tunneling Microscope

- Fast Scanning
- Simultaneous Imaging
- Current Imaging and Modulation Spectroscopy
- Dedicated Microprocessor Based Control Unit
- High Resolution Graphics Work Station
- Powerful Image Processing
- In Situ Sample and Tip Exchange
- Piezo Electric Coarse and Fine Positioning – no mechanical drives being used
- Complete UHV System "vibration free" for STM work available
- Support being provided to integrate STM into customers own UHV-System.



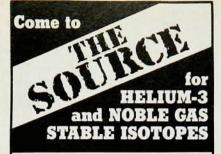


OMICRON Vakuumphysik GmbH Idsteiner Strasse 78 · D 6204 Taunusstein 4 Phone 0 6128/7 3044 · Fax 0 6128/7 3596 West Germany

OMICRON ASSOCIATES Suite 208, 1738 N. Highland Road Pittsburgh, PA 15241 Phone (412) 831-2262 · Fax (412) 831-9828

APS Show - Booth #803

Circle number 98 on Reader Service Card



Isotec Inc. is the world's leading commercial producer of enriched stable isotopes, including HELIUM-3, other noble gases, laser gas mixes and multiply-labelled compounds.



#### **You Get More From**



- In-house analytical support
- Highly trained, experienced personnel
- > 99% chemical purity
- Competitive prices
- Fast delivery

142

Call or write for your complete, NEW price list today!



3858 Benner Road, Miamisburg, OH 45342 (513) 859-1808 (800) 448-9760 Telex: 288278 Fax: (513) 859-4878

Circle number 99 on Reader Service Card

- 9-11 Intl Conf on Coatings and Sensors for Acoustic and Electromagnetic-Optical Applications University Park, PA See issue: 7/88
- 9-11 Intl Conf on Synchrotron Radiation Application Hefei, Anhui, China [Intl Ctr of Theor Phys, UNESCO, Chinese Academy of Sciences] Contact: Yan Yin, Hefei Natl Synchrotron Radiation Lab, Univ of Sci and Tech of China, Hefei, Anhui, P.R. China Note revised closing date.
  - 10–16 Assembly Intl Assoc Hydrological Sci Baltimore, MD See issue: 7/87
- 10–19 IAHS Scientific Assembly Baltimore, MD [AGU] Contact: A. Fred Spilhaus, Jr [Tel. (202) 462-6903] AGU, 2000 Florida Ave, NW, Washington, DC 20009
- 11–13 Teaching Vibration and Sound DeKalb, IL Contact: Deborah Booth [Tel. (815) 753-6913] College of Continuing Education NILL
  - 11-20 NATO Adv Study Inst on Optical Sources, Lasers and Synchrotron Radiation: Biological Effects and Potential Hazards Sicily, Italy See issue: 9/88
  - 14-19 42nd Ann Conf Soc for Imaging Sci and Tech Boston, MA See issue: 5/88
  - 15–18 6th Biennial Conf on Real-Time Applications in Nuclear, Particle, and Plasma Phys Williamsburg, VA See issue: 11/88
- 15–20 Intl Symp on Weak and Electromagnetic Interactions Montreal, Quebec, Canada Contact: P. Depommier [Tel. 514-343-6722] Nuclear Phys. Lab., Univ. of Montreal, P. O. Box 6128, Station A, Montreal, Quebec, Canada H3C 3J7 Note revised closing date.
  - **15–19 Short Course in Applied Optics** Las Cruces, NM *See issue:* 9/88
  - 15–20 IAU Symp 138: Solar Photosphere: Structure, Convection, Magnetic Fields Kiev, USSR See issue: 1/89
- 16-19 6th Conf on Real-Time Computer Applications in Nuclear, Particle and Plasma Phys Williamsburg, VA Contact: R. Roy Whitney, Continuous Electron Beam Accelerator Facility, 12000 Jefferson Ave, Newport News, VA 23606 [20 Feb. 89]
  - 16–19 Symp on Swift Heavy Ions in Matter Caen, France See issue: 11/88
  - 17–19 APS Ann Mtg of the Div of Atomic, Molecular, and Optical Phys Windsor, Ontario, Canada [APS] Contact: Winthrop Smith, Phys. Dept., Univ. of Connecticut, Storrs, CT 06268 [1 Feb. 89] See issue: 1/89
- 18-20 4th Natl Conf on Optics and Laser Eng Varna, Bulgaria Contact: I. D. Nikolov, OPTICS-89, Soc of Physicists, 5 Anton Ivanov bul., BG-1126 Sofia
- 22–24 1989 IEEE Intl Conf on Plasma Sci Buffalo, NY [IEEE Nuclear Plasma and Sciences Soc, SUNY Buffalo, Calspan Corp] Contact: David M. Benenson, [Tel. (716) 636-2422] Dept of Electrical and Computer Eng, SUNY-Buffalo, 207 Bell Hall, Buffalo, NY 14260
  - **22–25** 5th Intl Symp on Graphite Intercalation Compounds Berlin, FRG See issue: 9/88
  - 22–26 Intl Conf: "Inside the Sun" Versailles, France See issue: 9/88
- 22–26 117th ASA Mtg Syracuse, NY See issue: 7/87

- 22–26 IAU Symp 137: Flare Stars In Star Clusters, Associations and Solar Vicinity Byurakan, USSR See issue: 1/89
- 22–29 CP Violation in Particle Phys and in Astrophys, 25th Anniv of the CP Discovery Château de Blois, France Contact: J. Tran Thanh Van, LPTPE, Univ Paris Sud, Bât. 211, F-91405 Orsay Cedex
   23–25 Intl Symp of Optical Coatings Shanghai, China See issue: 1/89
- 24–25 The Fast-Neutron-Breeder Fission Reactor London, UK Contact: The Scientific Mtgs Secretary [Tel. 01-839-5561 ext 278] The Royal Soc, 6 Carlton House Terrace, London SW1Y 5AG
- 24–26 11th Intl Conf on Advances in Stabilization and Controlled Degradation of Polymers Lucerne, Switzerland See issue: 1/89
- 24–29 5th Intl Conf on Electrostatic Accelerators and Associated Boosters Strasbourg, France and Heidelberg, Germany Contact: F.Wechselgaertner, Conf Secretary, Ctr de Recherches Nucléaires, BP 20CR, F-67037, Strasbourg Cedex, France
- 25–27 1989 Symp on VLSI Tech Kyoto, Japan [IEEE Electron Devices Soc, Japan Soc of Applied Phys] Contact: Pallab Chatterjee [Tel. (214) 995-2151] Central Res Lab, Mail Stop 369, Texas Instruments, P.O. Box 655621, Dallas, TX 75265
  - 25–27 Symp on the 40th Anniversary of the Nuclear Shell Model Argonne, IL See issue: 9/88
- 29–2 12th Intl Symp on Molecular Beams Perugia, Italy Contact: Vincenzo Aquilanti, Dipto. di Chimica dell'Università, I-06100 Perugia [15 Mar. 89]
- 31–2 7th Intl Conf on Ion and Plasma Assisted Techniques Geneva, Switzerland Contact: CEP Consultants Ltd, 26-28 Albany St, Edinburgh EH1 3QH, UK
  - 31–2 43rd Ann Frequency Control Symp Denver, CO See issue: 1/89

#### **JUNE 1989**

- 2-12 24th Cracow School of Theor Phys: Structure of Fundamental Interactions Zakopane, Poland Contact: W. Slomiński, Inst of Phys, Jagellonian Univ, ul. Reymonta 4, 30-059 Kraków, Poland
- 4-7 Chapman Conf on the Phys of the Gulf of Mexico St. Petersburg, FL [AGU] Contact: A. Fred Spilhaus, Jr, [Tel. (202) 462-6903] Executive Director AGU, 2000 Florida Ave, NW, Washington, DC 20009
- 4–30 1989 Complex Systems Sum Sch Santa Fe, NM See issue: 1/89
- 5-6 8th Ann Symp of AVS: Electronic Materials, Processing and Characterization Richardson, TX See issue: 1/89
- 5-8 1st General Mtg of the APS Top Group on Computational Phys Boston, MA See issue: 1/89
- 5-9 7th Intl Colloq on Plasmas and Sputtering/5th Intl Symp on Dry Etching and Plasma Deposition in Microelectronics Antibes, France Contact: J. Fauvet, Société Française du Vide; 19 rue du Renard, F-75004 Paris [30 Nov. 88]
- 6-8 Intl Symp on Nuclear Decay Data: Spectrometric Methods, Measurements and Evaluations Braunschweig, FRG See issue: 9/88

- 6-9 Laser '89: Optoelektronik, Mikrowellen Munich, FRG Contact: Münchener Messe-u. Ausstellungs GmbH, Postfach 12 10 09, D-8000 München 12
- 10-15 Adv Techniques in MRI Kiawah Island, SC Contact: G. Allan Johnson [Tel. (919) 684-2711 ext. 354] Dept of Radiology, Box 3302, Duke Univ Med Ctr, Durham, NC 27710
- 11-15 Mtg of the Pacific Div of AAAS Chico, CA Contact: Alan E. Leviton, [Tel. (415) 752-1554] Exeuctive Director, Pacific Div, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118
  - 11-15 174th Mtg AAS Ann Arbor, MI See issue: 7/87
  - 11-15 4th Intl Time Resolved Vibrational Spectroscopy Conf Princeton, NJ See issue: 1/89
- 11-16 Issues in Sci and Tech Policy Williamsburg, VA [The Brookings Institu-tion, Ctr for Public Policy Education] Contact: Stan Wellborn [Tel. (202) 797-6105] Public Affairs Director, The Brookings Institution, 1775 Massachusetts Ave, NW, Washington, DC 20036
- 12-2 Astrophys Wksp on the Origin and Evolution of Compact Stellar Remnants Aspen, CO Contact: Michael Cross [Tel. (818) 356-4320] Phys Dept, Caltech, Pasadena, CA 91125
  - 12-14 Quantum-Limited Imaging & Information Processing Top Mtg and Image Understanding and Machine Vision Top Mtg North Falmouth, Cape Cod, MA See issue: 1/89
- 12-15 Intl Conf on Narrow-Gap Semiconductors and Related Materials Gaithersburg, MD See issue: 1/89
- 12-16 Gordon Res Conf on Nuclear Chem New London, NH Contact: Teng Lek Khoo [Tel. (312) 972-4034] Argonne Natl Lab
- 12–16 Fluid Mechanics Measurements 26–28 Ann Cong of the Canadian As-Minneapolis, MN Contact: Ann Todd, soc of Physicists Univ of Guelph Contact: [Tel. (612) 625-9502] Continuing Education and Extension, 315 Church St S.E., Univ of Minnesota, Minneapolis, MN
  - 12-16 15th Intl Conf on Improving University Teaching Vancouver, Canada See issue: 1/89
  - 12-16 North Amer Hyperthermia Group, Hyperthermia School St. Louis, MO See issue: 1/89
  - 12-16 IAU Symp 139: Galactic and Extragalactic Background Radiation-Optical, Ultraviolet and Infrared Components Heidelberg, FRG See issue: 1/89
- 12-16 Top Mtgs on Quantum-Limited Imaging and Image Processing, and on Signal Recovery and Synthesis North Falmouth, MA See issue: 9/88
- 13-15 Intl Wksp on the Rietveld Method Patten, The Netherlands [IUCr] Contact: PR Office, Netherlands Energy Res Foundation ECN, POB 1, NL-1755 ZG
- 13-17 Intl Symp on Heavy Quark Phys Ithaca, NY See issue: 11/88
- 14-16 Signal Recovery & Synthesis III Top Mtg North Falmouth, Cape Cod, MA See issue: 1/89
- 15-29 Advances in Nonradiative Processes in Solids Erice, Italy See issue: 11/

- 19-23 IAU Colloq 119: Comparative Planetology and the Origin of the Solar System Nanjing, China See issue: 1/89
- 19-23 IAU Symp 140: Galactic and Intergalactic Magnetic Fields Bonn or Heidelberg, FRG See issue: 1/89
- 19-23 5th Intl Conf on Radiation Effects in Insulators Hamilton, Canada See
- 19-23 7th Intl Conf on Fourier Transform Spectroscopy Fairfax, VA See issue:
- 19-29 Res Wksp in Condensed Matter, Atomic and Molecular Phys Trieste, Italy See issue: 1/89
- 19-30 US Particle Accelerator School (graduate level) [Univ of California, Berkeley] Contact: US Particle Accelerator School, Fermilab, MS 125, P.O. Box 500, Batavia, IL 60510
- 20-23 Phys of Classical Novae Madrid Spain Contact: Angelo Cassatella, Villafranca del Castillo Satellite Tracking Station, POB: Apartado 54065, Madrid,
  - 20-23 Interface Between Quantum Field Theory and Condensed Matter Phys Trieste, Italy See issue: 1/89
  - 20-23 Intl Symp on In Vivo Body Composition Studies Toronto, Canada See issue: 11/88
- 21–23 31st Electronic Materials Conf Cambridge, MA [Electronic Materials Committee of TMS] Contact: L. Ralph Dawson [Tel. (505) 846-3451] Sandia Natl Lab, Div 1144, P.O. Box 5800, Albuquerque, NM 87185 [13 Feb. 89]
- 21-25 100th Anniversary Mtg of the Astronomical Soc of the Pacific Berkeley, CA Contact: Andrew Fraknoi [Tel. (415) 337-1100] Executive Officer, Astronomical Soc of the Pacific, 390 Ashton Ave, San Francisco, CA 94112
- Mona L. Jento [Tel. (613) 237-3392 Canadian Assoc of Physicists, 151 Slater St, Suite 903, Ottawa, Ontario, Canada K1P 5H3 [19 Mar. 89]
- 26-28 Conf on Coherence and Quantum Optics Rochester, NY See issue: 1/
- 26-30 Intl Conf on New Aspects of Nuclear Spectroscopy Crete, Greece See issue: 1/89
- 26-30 9th Intl Conf on Ion Beam Analysis Kingston, Ontario, Canada See issue: 11/88
- 26-1 Wksp on B-Factories and Related Phys Issues Blois, France See issue:
- 26-1 IAU Collog 118: Dynamics of Small Bodies in the Solar System Nanjing, China See issue: 1/89
- 26-7 Summer Course in Applied Optics London, UK Contact: R. W. Smith [Tel. 01 589 5111 ext 8645] Optics Sections, Blackett Lab, Imperial College, London, SW7 2BZ
- 27-29 Canadian Astronomical Soc Ann Mtg Montreal, Canada Contact: Serge Demers [Tel. (514) 343-6718] Dept of Phys, Univ of Montreal, C.P. 6128, Succursace A, Montreal, PQ H3C 3J7

## QUALITY

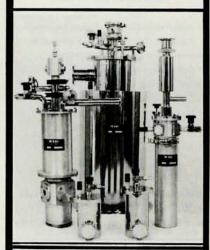
STEP

BY

STEP

BY

STEP



CUSTOM MANUFACTURE DESIGN. AND THEORETICAL ANALYSIS PERFORMANCE BY DESIGN.

FLOW CRYOSTATS AND CRYO WORKSTATIONS

STORAGE DEWAR MOUNT WORKSTATIONS

RESEARCH DEWARS AND CRYOSTATS

LIQUID HELIUM TRANSFER LINES HIGH VACUUM CHAMBERS TEMPERATURE SENSORS ELECTRONIC DIP STICK CRYO CONTROLLER **DETECTOR DEWARS** PLUS MORE !!!!!

# INDUSTRIES

of America, Inc.

24 Keewaydin Drive Salem, NH 03079

TEL: (603) 893-2060 FAX: (603) 893-5278

QUALITY CONSTRUCTION WITH LOWER PRICES THROUGH EFFICIENT MANUFACTURING.

Circle number 100 on Reader Service Card

143

#### HP-3852 Digitizer

HP9000 Series 200/300 Computer

DATA-TRACK Software

#### Powerful Data Acquisition System

... Ready-to-Use, Easy-to-Run ...

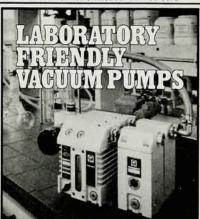
- Multichannel Continuous (Data Logger) or Transient (Oscilloscope) Operating Mode
- Universal HPIB Instrument Controller
- Color Graphics Coupled with Spreadsheets
- Data Processing, Fitting, and Analysis
- Open Architecture Allows User Expansion
- Demonstration and Tutorial Programs
- Self Booting or under HP Pascal OS



APPLIED RESEARCH **ASSOCIATES** 

1954 Woodbury Court, Walnut Creek, CA 94596 Tel.: 415-831-2320, FAX: 415-455-4600

Circle number 101 on Reader Service Card



#### Get the Facts On TRIVAC® B

- Compact Design
- Low Noise Level
- High Vapor Tolerance
- No Oil Backstreaming
- Solvent Resistant Seals

Ask for the 7 Golden Rules for use in Chemical Laboratories

Levbold Vacuum Products, Inc. Export, PA 15632 412-327-5700

Ext. 528

144



Circle number 102 on Reader Service Card

27-30 28th Intl Liège Astrophysical Colloq, Our Changing Atmosphere Liège, Belgium See issue: 1/89

28-30 Sum Mtg AAPT San Luis Obispo, CA See issue: 5/88

#### **JULY 1989**

2-8 12th Intl Conf on Few-Body Problems in Phys Vancouver, Canada See issue: 9/88

2-8 12th Intl Conf on General Relativity and Gravitation Boulder, CO See

3-6 5th Intl Conf on Emerging Nuclear Energy Systems Karlsruhe, FRG See issue: 1/89

3-6 2nd Wyoming Conf on the Interstellar Medium Grand Teton Natl Park, WY Contact: H. Thronson, Univ of Wyoming

● 3-7 Intl Conf on Megagauss Magnetic Field Generation and Related Topics Novosibirsk, USSR Contact: G. A. Shvetsov, Lavrentyev Inst of Hydrodynamics, Siberian Div of the USSR Academy of Sciences, Novosibirsk 630090 [15 Dec. 88]

3-7 Ultrasonics Intl 89 Conf and Exhibition Madrid, Spain [Ultrasonics] Contact: Marija Vukovojac, Conf Organizer [Tel. 0483 300966] Butterworth Scientific Ltd, P.O. Box 63, Westbury House, Bury St, Guildford, Surrey, GU2 5BH, UK [13 Jan. 89]

3-28 Sum Sch on Liquids, Freezing and the Glass Transition Les Houches, France See issue: 1/89

4-7 Summer Course in Nonlinear Optics London, UK Contact: G. H. C. New [Tel. 01-589 5111 ext 6811] Laser Optics Group, Blackett Lab, Imperial College, London SW7 2BZ

4-7 Quasicrystals Trieste, Italy See issue: 1/89

Conf on Materials for Non-Linear and Electro-Optics Cambridge, United Kingdom See issue: 11/88

5-8 Intl Conf on Optoelectronic Sci and Eng Beijing, China See issue: 1/89

7-10 Dynamics Days Düsseldorf Düsseldorf, FRG See issue: 1/89

9-14 4th Intl Conf on Scanning Tunneling Microscopy/Spectroscopy Oarai, Ibaraki, Japan See issue: 11/88

● 10-13 9th Specialized Colloque Ampere: Magnetic Resonance in Polymers Prague, CSSR Contact: J. Spevacek, Inst of Macromolecular Chem, 1888 Petriny, CS-162 06 Praha 616 [15 Apr. 89]

10-14 4th Intl Conf on Electron Spectroscopy Honolulu, HI Contact: C. R Brundle, IBM Almaden Res Lab, 650 Harry Rd, San Jose, CA 95120

10-14 Intl Conf on Phenomena in Ionized Gases Belgrade, Yugoslavia Contact: Dr. V. Zigman [Tel. 38-11-630-152] ICPIG XIX, Dept of Phys, Faculty of Sciences, Univ of Belgrade, Studentski trg 16, P.O.B. 550, 11001 Belgrade, Yugoslavia

10-14 1989 Intl Geoscience and Remote Sensing Symp Vancouver, BC, Canada [Canadian Remote Sensing Soc] Contact: Jo Moss [Tel. (604) 228-2064] In- 0 23-29 Ann Mtg ACA Seattle, WA formation Officer, [Tel.] Univ of British Columbia, 6328 Memorial Rd, Vancouver, BC, Canada

10-14 Intl Conf on Ion Sources Berke. ley, CA See issue: 5/88

● 10-15 Plasma Phenomena in Solar Phys Cargèse, Francee, Contact: M. A. Dubois, DRFC-STGI, CEN Cadarache, F-13108 St Paul-lez-durance Cedex [1 Apr. 89]

10-21 10th Santa Cruz Summer Wksp in Astr and Astrophys, on Supernovae Santa Cruz, CA See issue: 1/89

11-13 Wksp on Low Mass Star Formation and Pre-Main Sequence Objects Garching, West Germany See issue: 11/ 88

11-14 6th Intl Conf on Numerical Analysis of Semiconductor Devices and Integrated Circuits Dublin, Ireland See issue: 5/88

12-14 Solid State Lasers Top Mtg Sino-Japanese Joint Mtg on Optical Fiber Sci and Electromagnetic Theory Beijing, China See issue: 1/89

12-14 Applied Vision Top Mtg San Francisco, CA See issue: 1/89

16-21 1989 Conf on Dynamics of Molecular Collisions Pacific Grove, CA See issue: 9/88

17-21 12th AIRAPT and 27th EHPRG Intl Conf on High Pressure Sci and Tech Paderborn, FRG Contact: W. B. Holzapfel, Fb.6, Univ Paderborn, Postfach 16 21, D-4790 Paderborn [15 Feb. 89]

● 17-21 4th Intl Conf on Modulated Semiconductor Structures Ann Arbor, MI Contact: MSS-4 Conf Secretary, Extension Service, Conf Dept, The Univ of Michigan, 200 Hill St, Ann Arbor, MI 48104-3297 [3 Mar. 89]

• 17-21 17th Intl Symp on Shock Waves and Shock Tubes Bethlehem, PA [Lehigh Univ, Dept of Phys] Contact: Yong W. Kim, Professor of Phys, [Tel. (215) 758-3922] Lehigh Univ, Bldg 16, Bethlehem, PA 18015

● 17–21 Chapman Conf on Cometary Plasma Processes—Observations and Theory Southern England [AGU] Contact: A. Fred Spilhaus, Jr [Tel. (202) 462-6903] Executive Director, AGU, 2000 Florida Ave, NW, Washington, DC 20009

9th Intl Conf on Vacuum Ultraviolet Radiation Phys Honolulu, HI See issue: 7/88

18-21 Strongly Correlated Electron Systems Trieste, Italy See issue: 1/89

18-21 7th Intl Conf on Integrated Optics and Optical Fiber Communication Kobe, Japan See issue: 1/89

18-21 Intl Conf on Lasers in the Life Sciences Guangzhou, China See issue: 1/

23-27 Ann Mtg AAPM Memphis, TN See issue: 7/87

23-28 12th Intl Collog on the Dynamics of Explosions and Reactive Sys Ann Arbor, MI Contact: News and Information Services [Tel. (313) 764-7260] 412 Maynard, Ann Arbor, MI 48109-1399

Contact: D. Savage [Tel. 716-856-9600] ACA, Box 96, Ellicott Station, Buffalo, NY 14205 Note revised closing date

24-26 2nd Micro-Optics Conf 8th Top Mtg on Gradient-Index Optical Imaging Systems Tokyo, Japan See issue: 1/89

 24–26 2nd Intl Conf on Vacuum Microelectronics Bath, UK Contact: Mtgs Officer, The Inst of Phys, 47 Belgrave Square, London SW1X 8QX

24–27 Intl Symp on Math and Theor Phys Guaruja, Brazil See issue: 9/88

24–28 Conf on Nonlinear Optics and Lasers Wolfeboro, New Hampshire See issue: 11/88

 24–28 29th Annl Prog in Applied Molecular Spectroscopy: Infrared Tempe, AZ Contact: Jacob Fuchs, Dept of Chem, Arizona State Univ, Tempe, AZ 85287

24–11 Phys of the Early Universe.
 Edinburgh, UK Contact: Mrs. A. Bryans
 [Tel. (031) 667-3321] SUSSP 1989, Royal
 Observatory, Blackford Hill, Edinburgh
 EH9 3HJ UK

• 25–28 Frontiers in Stellar Evolution Alpine, TX [The Univ of Texas at Austin, McDonald Observatory] Contact: Sandra Preston, Assistant to Director [Tel. (512) 471-5285] The Univ of Texas at Austin, RLM 15.308, Austin, TX 78712

26–1 Intl Conf on Phys of Electronic and Atomic Collisions New York, NY See issue: 5/88

 30–3 Elastic Wave Propagation and Ultrasonic Nondestructive Evaluation Boulder, CO [Intl Union of Theor and Applied Mechanics, Univ of Colorado] Contact: S. K. Datta [Tel. (303) 492-7750] Dept of Mechanical Eng, Univ of Colorado, Campus Box 427, Boulder, CO 80309-0427

**30–3 12th Intl Electron Paramagnetic Resonance Symp** Denver, CO *See issue*: 1/89

 30–4 33rd Annl Intl Tech Symp on Opt and Optoelectronic Applied Sci and Eng San Francisco, CA Contact: SPIE, POB 10, Bellingham, WA 98227-0010

**30–11** Natl Nuclear Phys Sum Sch Gull Lake, Michigan See issue: 11/88

31–3 6th Intl Top Mtg on Photoacoustic and Photothermal Phenomena Baltimore, MD See issue: 1/89

31–4 36th Intl Field Emission Symp Oxford, UK See issue: 9/88

31-4 17th IUPAP Intl Conf on Thermodynamics and Statistical Mechanics Rio de Janeiro, Brazil See issue: 5/88

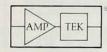
 31–4 Intl X-Ray Conf Denver, CO [Univ of Denver Dept of Eng] Contact: Paul Predecki [Tel. (303) 871-2102] Dept of Eng, Univ of Denver, Denver, CO 80208

31-5 Europhysics Study Conf on Physics Education: Interdisciplinary Aspects of Physics Education Altmünster/Traunsee, Austria Contact: H. Kühnelt, Inst f. Theoretische Physik, Univ Wien, Boltzmanngasse 5, A-1090 Wien



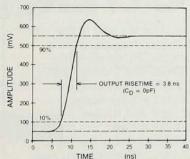
APS Show - Booths #503-505

Circle number 103 on Reader Service Card



#### CHARGE SENSITIVE PREAMPLIFIER

A250



## RUN SILENT — RUN FAST!!!

A NEW STATE-OF-THE-ART

EXTERNAL FET

FET CAN BE COOLED

-----

NOISE: < 100e-RMS (Room Temp.) < 20e-RMS (Cooled FET) POWER: 19 mW typical SLEW RATE: > 475 V/ µs GAIN-BANDWIDTH f<sub>T</sub> > 1.5 GHZ

A250

If you are using: Solid State Detectors, Proportional counters, Photodiodes, PM tubes, CEMS or MCPs and want the best performance, try an AMPTEK CHARGE SENSITIVE PREAMPLIFIER

Send for Complete Catalog

#### eatures:

Low noise (less than 100 electrons RMS) Low power (5 milliwatts) Small size (Hybrids) High Reliability

Radiation hardened (as high as 10' Rads) One year warranty

#### Applications:

Aerospace
Portable Instrumentation
Nuclear Plant
Monitoring
Imaging
Research Experiments
Medical and Nuclear
Electronics
Electro-Optical
Systems and others.



#### AMPTEK INC.

6 DE ANGELO DRIVE, BEDFORD, MA 01730 U.S.A. (617) 275-2242

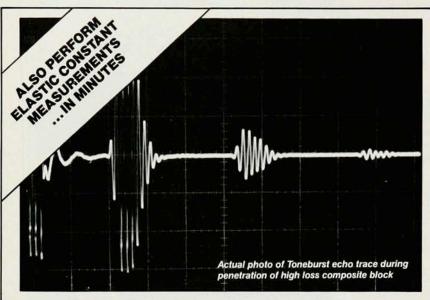
SOUTH MUTTRALK TEXHS DTY, LTD, DO, Allerion, Angled, 2001DE, AUSTRIA, MANTICA Visions 563-318, BEQUINE, ANDRE INTECHMUN IV., Anthere DIZZE TR V.
BRAILL TEXHS LTD, AS SO PRIOR SOUTHON, SERVINSE DAVAMAN, WHONG MITTE BROMAD TEXHS LTD, DOES, WESSED STRANGES SALE, Codes
956 77 IV. WEST GERMANY TEXHS OF ORth Municipa SYSTEM, NOME ASAN-TEXHS Devision of BAXULENIA ANAMALAL, PYT, LTD, Rockey SOUTH, BRAILE, GIVEON AGENCIES,
U.D. Find-International Control Cont

Circle number 104 on Reader Service Card

#### AUGUST 1989

- 1-31 Sum Sch on Chaos and Quantum Phys Les Houches, France See issue: 1/89
  6-11 33rd Ann Intl Technical Symp on Optical and Optoelectronic Applied Sci and Eng San Diego, CA See issue: 1/89
- 6–11 Electron Microscopy Soc of America Ann Mtg San Antonio, TX Contact: Mort Maser, [Tel. (617) 540-5594] Electronic Microscopy Soc of Amer, P.O. Box EMSA, Woods Hole, MA 02543
- 6-13 Intl Symp on Lepton-Photon Interactions Stanford, CA [IUPAP] Contact: R. E. Taylor, SLAC, POB 4349, Stanford, CA 94305
- 7–9 2nd Intl Conf on Electrorheological Fluids Raleigh, NC [Dept of Materials Sci and Eng, North Carolina State Univand Lord Corporation] Contact: J. David Carlson [Tel. (919) 469-3443] Lord Corporation, Thomas Lord Res Ctr, P.O. Box 8225, Cary, NC 27512-8225 [15 Jan. 89]
- 7-11 13th Intl Conf on Atomic Collisions in Solids Aarhus, DK Contact: Su-

- sann Toldi, Inst of Phys, Aarhus Univ, DK. 8000 Aarhus C [15 Mar. 89]
- 7-11 6th Natl Conf on Synchrotron Radiation Instrum Berkeley, CA Contact: Klaus Berkner [Tel. (415) 486-5501] 1 Cyclotron Rd, MS 50-149, Berkeley, CA 94720
- 7–11 Intrinsic Properties of Hot Luminous Stars Boulder CO [Joint Inst of Lab Astrophys, Univ of Colorado at Boulder] Contact: Joint Inst of Lab Astrophys, [Tel. (303) 492-8497] Univ of Colorado at Boulder, Campus Box 440, Boulder, CO 80309
- 8-11 Wksp on Computational Phys and Cellular Automata Ouro Preto, Brazil Contact: A. Pires [Tel. (55) (31) 441-2541] Departamento de Física, Universidade Federal de Minas Gerais. Caixa Postal 702, Belo Horizonte MG, 30161 Brazil
- **13–17** 2nd Intl Conf on Low-Energy Dislocation Structures Charlottesville, VA [School of Eng and Applied Sci, Univ of Virginia] *Contact:* William A. Jesser [*Tel.* (814) 924-6349] School of Eng and Applied Sci, Univ of Virginia, Materials Sci Bldg 223, Charlottesville, VA 22903
- 13–18 12th Conf of the Intl Soc of General Relativity and Gravitation Rio de Janeiro, Brazil Contact: M. Soares, Centro Brasileiro de Pesquisas Fisicas, Rua Xavier Sigaud 150, CEP 22 920 Rio de Janeiro - RJ
  - 13–26 NATO Adv Study Inst on High-Temp Superconductors Bad Windsheim, FRG See issue: 9/88
  - 14–17 APS Top Conf on Shock Compression of Condensed Matter Albuquerque, NM See issue: 9/88
- 14–18 6th Intl Conf on Energy and Electron Transfer: Photosynthetic Systems and their Models, Photochemical Processes Prague, CSSR Contact: L. Skala, Fac. of Math and Phys, Charles Univ, Ke Karlovu 3, CS-121 16 Praha 2
- 14–18 7th Intl Conf on Biomagnetism New York, NY Contact: Samuel J. Williamson [Tel. (212) 998-7879] Dept of Phys, 4 Washington Place, New York Univ, New York, NY 10003 [15 Feb. 89]
  - 14-18 8th Conf on Hopping Transport Chapel Hill, North Carolina See issue: 11/ 88
- 20–23 Materials for Biomedical Applications Philadelphia, PA Contact: Richard Korsmeyer [Tel. (203) 441-3088] Pfizer Inc., Groton, CT 06340
- 20–25 Intl Conf on Crystal Growth Sendai, Japan Contact: Inter Group Corp, 8-5-32, Akasaka Minato-ku, Tokyo 107, Japan
  - 20–26 Intl Nuclear Phys Conf São Paulo, Brazil See issue: 7/88
- 20–29 12th Eur Crystallography Mtg Moscow, USSR Contact: Organizing Committee, Leninsky pr. 59, Moscow 117333
  - 21–24 13th Intl Conf of Amorphous and Liquid Semiconductors Asheville, North Carolina See issue: 11/88
  - 21–25 CESRA Wksp on Particle Beams in the Solar Atmosphere Braunwald, Switzerland See issue: 11/88
- 21–25 3rd Intl Conf on Phonon Phys; 6th Intl Conf on Phonon Scattering in Condensed Matter Heidelberg, FRG Contact: [Tel. ,] Inst f. Angewandte Physik II, Univ Heidelberg, Albert-Überle-Strasse 3-5, D-6900 Heidelberg, FRG



# SEE THE POWER.

# Ultrasonic Toneburst powers through composite materials

When researchers at a major university needed to evaluate high loss composite materials that defied even very high-powered spike and square wave ultrasonic techniques, they turned to Matec Instruments for a solution.

We helped them solve the problem with our Toneburst transducer excitation technique. It gets more energy into the sample because the ultrasonic

power pulse is tuned to the fundamental frequency of the transducer. The result—up to TEN TIMES THE ENERGY INTO THE SAMPLE compared to equivalent voltage levels using spike and square wave techniques.

With our tuned Toneburst ultrasonics, the university is now able to accurately and consistently evaluate thick, high loss composites which had previously defied all their efforts.

Put the power and experience of Matec Instruments to work for you. Call or write us today.

# MATEC INSTRUMENTS A SUBSIDIARY OF MATE

75 South Street, Hopkinton, MA 01748 USA Tel. 508-435-9039 Telex 94-8332 FAX 508-435-5289

APS Show - Booth #102

146

Circle number 105 on Reader Service Card

#### HIGH TEMPERATURE SUPERCONDUCTIVITY RESEARCH CRYOSTATS

FROM 1.3°K TO 350°K

#### Applicable for:

- MATERIALS RESEARCH WITHIN A MAGNETIC FIELD
- THIN FILM FORMULATION AND EVALUATION
- HOUSING FOR SUPER-CONDUCTING MAGNETS

Standard Modular dewar body with interchangeable tail sections Custom Manufacturing available.

#### FREE 32 PAGE CRYOGENIC MASTER CATALOG



andonian cryogenics, inc.

26 FARWELL STREET, NEWTONVILLE, MASSACHUSETTS 02160 TELEPHONE (617) 969-8010

Circle number 106 on Reader Service Card



FEATURES:

CHOICE OF LEAK RATE
 INDIVIDUAL CALIBRATION
 METAL RESERVOIR
 LOW TEMPERATURE COEFFICIENT
 GRADUAL PRESSURE RISE AT PREDICTABLE RATE

#### NBS TRACEABILITY

#### APPLICATIONS IN VACUUM TECHNOLOGY:

Calibration Standard for Residual Gas

- Calibration Standard for Analytical Mass Spectrometers
- Gas Blending in the ppm Range
- Simulated Leak

#### **QASES AVAILABLE:**

- ARGON FREON 23
- DEUTERIUM NITROGEN
- HELIUM OXYGEN HYDROGEN SULFURHEXAFLUORIDE
- OTHER GASES ALSO AVAILABLE

For more information and specifications, call or write:

#### VACUUM INSTRUMENT CORPORATION

2099 NINTH AVENUE, RONKONKOMA, NY 11779 TEL. 516-737-0900 / FAX 516-737-0949

#### New books in the NATO ASI SERIES in PHYSICS

Volume 188

REFLECTION HIGH-ENERGY ELECTRON DIFFRACTION AND REFLECTION ELECTRON IMAGING OF SURFACES

edited by P. K. Larsen and P. J. Dobson 0-306-43035-5/proceedings/556 pp./ill./1988/\$110.00

Volume 189

#### BAND STRUCTURE ENGINEERING IN SEMICONDUCTOR MICROSTRUCTURES

edited by R. A. Abram and M. Jaros 0-306-43080-0/proceedings/374 pp. + index/ill./1989/\$83.00

Volume 190

#### SQUEEZED AND NONCLASSICAL LIGHT

edited by P. Tombesi and E. R. Pike 0-306-43084-3/proceedings/346 pp./ill./1989/\$75.00

Volume 191

#### SURFACE AND INTERFACE CHARACTERIZATION BY ELECTRON OPTICAL METHODS

edited by A. Howie and U. Valdré 0-306-43086-X/proceedings/328 pp./ill./1988/\$75.00

Volume 192

#### NOISE AND NONLINEAR PHENOMENA IN NUCLEAR SYSTEMS

edited by Jose L. Muñoz-Cobo and F. C. Difilippo 0-306-43102-5/proceedings/474 pp. + index/ill./1989/\$95.00

Volume 193

#### THE LIQUID STATE AND ITS ELECTRICAL PROPERTIES

edited by E. E. Kunhardt, L. G. Christophorou, and L. H. Luessen 0-306-43145-9/proceedings/573 pp./ill./1988/\$110.00

Volume 194

#### OPTICAL SWITCHING IN LOW-DIMENSIONAL SYSTEMS

edited by H. Haug and L. Banyai 0-306-43155-6/proceedings/368 pp. + index/ill./1989/\$82.50

Volume 195

#### METALLIZATION AND METAL-SEMICONDUCTOR INTERFACES

edited by Inder P. Batra 0-306-43159-9/proceedings/approx. 525 pp./ill./1989

Volume 196

#### COLLISION THEORY FOR ATOMS AND MOLECULES

edited by Franco A. Gianturco 0-306-43202-1/proceedings/approx. 575 pp./ill./1989

> Visit the Plenum Booths at the APS Show - #416 and #417!



PLENUM PUBLISHING CORPORATION 233 Spring Street, New York, NY 10013-1578

#### Superconductivity Measurements

#### 4-WIRE RESISTANCE 10 NANO-OHM RESOLUTION

Milliohm range
 O.1 Amp AC excitation
 Micro-ohm resolution

200 Micro-ohm range 1 amp AC excitation 0.01 Micro-ohm resolution

Using our new Model LR-HCA High Current Accessory Unit plus our standard Model LR-400 AC Resistance Bridge

#### LINEAR RESEARCH INC.

5231 Cushman Place X21 San Diego, CA 92110 USA 619-299-0719 619-299-0129 Telex: 6503322534 MCI UW

APS Show - Booth #115 Circle number 109 on Reader Service Card

# MICRO-STEPPING PRECISION



#### Introducing the New 300 Series Micro-Stepping Motor Controllers

Designed with flexible features to match a wide range of instrument control applications:

- Front-panel membrane keyboard, alphanumeric display and rotary adjust knob
- · Half-step and micro-step resolution
- · Simultaneous coordination of 4 motors
- Computer control via RS-232C interface or GPIB/IEEE-488 bus
- . Trackball & joystick for manual positioning

Custom keyboards, displays, and software available for OEM applications.

For Complete Information Write or Call:

148



P.O. Box 12033 • Research Triangle Park, NC 27709 (800) 922-0460 (919) 846-1633

APS Show - Booth #210 Circle number 110 on Reader Service Card

- 21–26 24th Intl Conf on High Energy Accelerators Tsukuba, Japan See issue: 1
- 22-26 10th Intl Symp on Nuclear Quadrupole Resonance Spectroscopy Takayama, Japan Contact: D. Nakamura, Dept of Chem, Faculty of Sci, Nagoya Univ, Chikusa, Nagoya 464-01, Japan [28 Feb. 89]
- 24–26 1st Intl Conf on Amorphous Semiconductor Tech Asheville, North Carolina See issue: 11/88
- 24–31 13th Cong of the Intl Commission on Acoustics Belgrade, Yugoslavia [IUPAP, ICA] Contact: ICA-Information and Coordination Service, Plzenska 66, CS-151 24 Praha 5, CSSR
- 26–31 Intl Sum Sch on Crystal Growth Tokyo, Japan Contact: Inter Group Corp., Akasaka Yamakatsu Bldg., 8-5-32, Akasaka Minato-ku, Tokyo 107, Japan
- 27–31 5th Interdisciplinary Laser Sci Conf Stanford, CA [APS Top Group on Laser Sci] Contact: Jim Spellos [Tel. (212) 682-7341] APS Mtgs Dept, 335 E. 45th St., New York, NY 10017 [12 May 89]
  - 28–31 7th Intl Conf on Dynamical Processes in Excited States of Solids Athens, GA See issue: 9/88
- 28–1 Intl Mtg on Ferroelectricity Saarbrücken Contact: Prof Müser, FB Physik, Universität des Saarlandes, 6600 Saarbrücken
  - 28–1 12th Intl Cong on X-Ray Optics and Microanalysis Cracow, Poland See issue: 9/88
- 28-1 2nd Eur Quantum Electronics Conf Dresden, GDR Contact: K. Junge, Zentralinstitut f. Optik u. Spektroskopie, Rudower Chaussee 6, DDR-1199 Berlin-Adlershof
- 28–8 Top Mtg on Variational Problems in Analysis Trieste, Italy Contact: ICTP, POB 586, I-34100 Trieste, Italy

#### SEPTEMBER 1989

- 3–7 Conf on the Computation of Electromagnetic Fields Tokyo, Japan See issue: 11/88
- 4–8 Intl Conf on the Applications of the Mössbauer Effect Budapest, Hungary Contact: Dénes Lajos Nagy, Central Res Inst for Phys POB 49, H-1525 Budapest 114 [1 Mar. 89]
- 4-8 Intl Cong on Intergranular and Interphase Boundaries in Materials Paris, France Contact: Marc Aucouturier, Lab de Physique des Solides, CNRS, 1 pl. Aristide Briand, F-92195 Meudon Principal Cedex [15 Feb 89]
- 4-8 21st Europhysics Conf on Macromolecular Phys: Electrical and Opt Active Polymers Lodz, Poland, Contact: J. Ulanski, Polymer Inst Tech Univ of Lodz, Zwirki 36, PL-90924 Lodz [15 Mar. 89]
  - 4–8 8th Intl Conf Electronic Properties of Two-Dimensional Systems Grenoble, France See issue: 11/88
  - 5-8 Computations in Phys and Phys in Computation Trieste, Italy See issue: 1/89
  - **5–8 O-E/FIBERS** Boston, MA *See issue*: 1/89
  - 5-9 1st Eur Conf on Accelerators in Applied Res Tech Frankfurt am Main/ Germany See issue: 1/89

- 6-8 Environmental Aspects of Polymer Degradation and Stabilization: Recycling, Conservation and Industrial Applications Kingston-On-Thames, UK See issue: 1/89
- 6–8 10th Specialized Ampère Collog: Hertzian Optics and Dielectrics Rennes, France Contact: G. Dubost, Lab Antennes et Réseaux Large Bande, Univ Rennes I, F-35042 Rennes Cedex
  - 6-9 EMMA '89 Eur Magnetic Materials and Applications Conf Rimini, Italy See issue: 1/89
- 6–13 Intl Europhysics Conf on High-Energy Phys Madrid, Spain Contact: F. Barreiro, Depto. de Fisica Teorica, Mod. C-XI, Univ Autonoma de Madrid, Cantoblanco, E-28049 Madrid, Spain
  - 6–15 Course and Wksp on Tritium and Adv Fuels in Fusion Reactors Varenna, Italy See issue: 5/88
- 7–9 Fundamental Symmetries in Nuclei and Particles Pasadena, CA Contact: Petr Vogel, [Tel. (818) 356-4281] Phys Dept 161-33, Caltech, Pasadena, CA 91125
  - 10–14 15th Eur Conf on Optical Communication Gothenburg, Sweden See issue: 9/88
  - 10-15 VIIth Eur Conf on Fluid and Materials Sciences in Microgravity Oxford, UK See issue: 11/88
  - 11–13 Holographic Systems, Components and Applications Bath, England See issue: 1/89
- 11–15 WE-Heraeus-Sem: Genl Rel and Applications Bad Honnef, FRG Contact: H. Gönner, Univ Gottingen
  - 11–15 Eur Conf on Optical Communication Gothenburg, Sweden See issue: 1/89
- 11–15 Highly Correlated Electron Systems Santa Fe, NM Contact: J. O. Willis, Mail Stop K 764, Los Alamos Nat Lab, Los Alamos, NM 87545
- 11-22 Adv Study Inst on Electronic Properties of Multilayers and Low Dimensional Semiconductor Structures Toulouse, France [NATO] Contact: J. M. Chamberlain [Tel. 0602-484848 Ext. 2806] Dept of Phys, Univ of Nottingham, Nottingham NG7 2RD, UK [1 Mar. 89]
  - 11–29 Adriatico Working Party on Condensed Matter Properties of Neutron Stars Trieste, Italy See issue: 1/89
- 12–15 6th Cambridge Wksp on Cool Stars, Stellar Sys and the Sun Seattle, WA See issue: 1/88
- 13–15 EMAG '89: Micro 89 Exhibition and Conf London, UK Contact: The Administrator, Royal Microscopical Soc, 37/ 38 St. Clements, Oxford OXA 1AJ
- 14–19 2nd Intl Symp on Surface Waves in Solids and Layered Structures; 4th Natl Scientific Tech Conf with Intl Participation Varna, Bulgaria [URSI] Contact: M. Borissov, Georgi Nadjakov Inst of Solid State Phys, Lenin Blvd 72, BG-1784 Sofia [28 Feb. 89]
- 17–22 IUVSTA Wksp on Structure and Reactivity of Small Molecules on Surfaces Ofir, Portugal Contact: D. P. Woodruff [Tel. (44) 203-523378] Phys Dept, Univ of Warwick, Coventry CV4 7AL, UK
- 17–22 4th Intl Conf on II–VI Compounds West Berlin Contact: Jürgen Gutowski, PN 5-1, Inst f. Festkörperphysik,



# Standard Custom

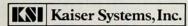
## **High Voltage Power Supplies**

#### SERIES 1000 Laboratory DC **Power Supplies**

- **High Performance** Supplies
- Models from 0-5 kV through 0-100 kV
- 500 W to 6 kW, very highly regulated · Abuse and fault
- tolerant · 5 week delivery,
- 5 year warranty

- **Custom DC Power**
- · Electron and Other Beam
- · X-Ray
- Material Deposition
- Accelerators
- Lasers
- Capacitor Charging
- Research & Development
- · Other Laboratory and **OEM** applications

The High Voltage Power Supplies That Work ™



126 Sohier Road, Beverly, MA 01915 Phone: (508) 922-9300 • FAX (508) 922-8374.

Circle number 111 on Reader Service Card

# Check our price breaks . . . before your budget breaks

#### Competitive, Production-Quantity Prices for the Inorganic Chemical of Your Choice

CERAC's high purity, advanced inorganic chemicals come with very attractive price breaks for production-quantity lots. And you still get the same fast delivery and consistently high purity that you get with our small-quantity, R&D lots. We also give production-quantity discounts on sputtering targets and evaporation materials.

Contact CERAC for a free quote on your next inorganic materials order.

incorporated

P.O. Box 1178 • Milwaukee, WI 53201 Phone: 414-289-9800 • Fax: 414-289-9805 • Telex: RCA 286122

Circle number 112 on Reader Service Card

## No more drudgery.



Let's face it. Math is 2% inspiration and 98% drudgery. If you're not inspired by math, it's only because you haven't used

## Derive<sup>™</sup>, A Mathematical Assistant!

You can be creative; Derive does the drudgery.

Derive intelligently applies powerful transformations to automatically simplify and solve complex mathematical problems. Its in-depth knowledge of math includes the fields of arithmetic, algebra, trigonometry, probability, statistics, matrices, and calculus.

Derive is more than a computer algebra system. It plots mathematical expressions in 2 and 3 dimensions. It evaluates functions numerically to any desired degree of precision. It gives you the freedom to explore-and make mistakeswithout wasting hours of your time.

#### Derive, A Mathematical Assistant.

2000 years of mathematical knowledge on a disk.

Derive was created by the authors of the muMATH™ symbolic math system and the muLISP™LISP programming environment.

Derive lists for \$200 and runs on PC compatible computers with 512K. Write or call for more information. Dealer inquiries welcome.



Derive is a trademark of Soft Warehouse, Inc.

## Soft Warehouse?

Handcrafted software for the mind.

3615 HARDING AVENUE, SUITE 505 HONOLULU, HAWAII 96816 U.S.A.

(808) 734-5801 after noon PST

# For your Optics Library.



This new Rolyn Catalog provides you with product information covering your needs for off-the-shelf optics. Write or call today for your free copy.

# ROLYN OPTICS

706 Arrow Grand Circle • Covina, CA 91722-2199 (818) 915-5707 • (818) 915-5717 Telex: 67-0380 • FAX: (818) 915-1379

Circle number 114 on Reader Service Card

#### SPACE FOR EXHIBITS AT THE BOSTON COMPUTATIONAL PHYSICS MEETING

ATTENTION: Computer Manufacturers, Publishers, Developers of Software for Research or Educational Applications

The Topical Group on Computational Physics of the American Physical Society will hold its First General Meeting at Boston University on June 5–8, 1989.

Participation by several hundred leading scientists is anticipated.

A limited amount of floor space in an area adjacent to the main conference hall is available for exhibits.

Interested parties should write to:

Claudio Rebbi—Physics Department CP89—Boston University—590 Commonwealth Avenue—Boston, MA 02215—Tel: 617-353-9058.

- T. U. Berlin, Hardenbergstr. 36,D-1000 Berlin 12
- 18-21 Math of Geophys Sci Houston, TX [SIAM] Contact: Vickie Kearn, SIAM [Tel. (215) 564-2929] 117 South 17th St, 14th Fl., Philadelphia, PA 19103-5052
- 19–22 3rd Ann Utah State Univ Conf on Small Satellites Logan, UT [Amer Inst of Aeronautics and Astronautics] Contact: Jillyn Smith [Tel. (801) 750-1359] Information Services, Utah State Univ, Logan, UT 84322-0500
  - 19-26 13th Intl School on Theor Phys: Standard Model and Beyond Szczyrk, Poland See issue: 9/88
  - 23–27 Conf and Wksp on Teaching Optics at the Tertiary Level Victoria, Australia See issue: 11/88
- 24–30 Intl Conf on Nuclear Phys São Paulo, Brazil [IUPAP] Contact: Oscar Sala, Instituto de Fisica, C. Postal 20516, BR-01498 São Paulo, Brazil
- 25–27 Transport Processes in Fluids and in Mobile Phases Aachen, FRG Contact: H. Versmold, Institut für Physikalische Chemie, RWTH Aachen, Templergraben 59, D-5100 Aachen, FRG
- 25–27 Sensors and their Applications Canterbury, UK Contact: Mtgs Officer, The Inst of Phys, 47 Belgrave Sq, London SW1X 8QX [Apr. 89]
- 25–28 Eur Conf on Opt Integrated Systems Amsterdam, NL Contact: A. Dönszelmann, Zeeman Lab, Univ of Amsterdam, Plantage Muidergracht 4, NL-1018 TV Amsterdam [Feb. 89]
- 25–29 Cong of the French Physical Soc Lyon, France Contact: J. Dupuy, Université Claude Bernard, Lyon I, F-69622 Villeurbanne [1 June 89]
- 25–29 IAU Colloq No 117: Dynamics of Prominences Hvar, Yugoslavia Contact: V. Ruzdjak, Inst of Phys, Univ of Zagreb, P.O. Box 304, 41001 Zagreb, Yugoslavia
  - 25–29 11th Intl Vacuum Cong and 7th Intl Conf on Solid Surfaces Cologne, FRG See issue: 9/88
- 25–29 Final Stages of Stars Lyon, France Contact: J.-P. Lafon, [Tel. ,] Observatoire de Paris-Meudon, DASGAL, F-92195 Meudon Principal Cedex
- 25–30 3rd Intl Conf on Problems in Quantum Phys—Recent and Future Experiments and Interpretations Gdansk, Poland Contact: M. Zukowski, Inst of Theor Phys and Astrophys, Univ of Gdansk, ul. Wita Stwosza 57, PL-80 952 Gdansk [31 Dec. 89]
- 25–30 1st Intl Conf on Epitaxial Crystal Growth Budapest, Hungary, Contact:
   E. Lendvay, Res Inst for Tech Phys, Hungarian Acad of Sci, Ujpest 1, Pf 76, H-1325 Budapest.
  - **26–29** IAU Colloq 117: Dynamics of Prominences Hvar, Yugoslavia *See issue*: 1/89

30–4 Intl Conf on High-T<sub>C</sub> Thin Films and Single Crystals Ustron, Poland See issue: 1/89

#### OCTOBER 1989

- 1-5 4th Eur Wksp on Problems in the Numerical Modeling of Plasmas Spitzingsee, FRG Contact: W. Kerner, MPI f. Plasmaphysik, Bolzmannstr. 2, D-8046 Garching [1 Dec. 88]
- 2-5 3rd Intl Symp on Borehole Geophys Las Vegas, NV See issue: 1/89
- 2–5 Materials Weeks '89 Indianapolis, IN [ASM Intl, TMS] Contact: George A. Mentzer [Tel. (216) 338-5151] Communications Officer, ASM Intl, Metals Park, OH 44073
- 2-6 25th Anniversary Conf on Frontiers in Phys and High Tech Trieste, Italy Contact: Intl Ctr for Theor Phys, POB 586, I-34100 Trieste
  - 2-6 2nd Eur Conf on Progress in X-Ray Synchrotron Radiation Res Rome, Italy See issue: 1/89
- 6-7 AAAS Forum for School Sci Arling ton, VA [AAAS] Contact: Joan Wrather [Tel. (202) 326-6440] Amer Assoc for the Advancement of Sci, 1333 H St, NW, Washington, DC 20005
- 7–13 40th Intl Astronautical Cong Beijing, China Contact: D. A. Fester, Martin Marietta Space Syss, PO Box 179, Mail Stop DC 4378, Denver, CO 80201 [1 Mar. 89]
  - 7–13 Intl Conf on Kinetics of Nonhomogeneous (Nonlinear) Processes Banff, Canada See issue: 1/89
- 9-13 12th North Amer Wksp on Cataclysmic Variables and Low-Mass X-ray Binaries Santa Fe, NM Contact: F.A. Cordova, LANL
  - 10-13 4th Intl Top Mtg on Nuclear Reactor Thermal-Hydraulics Karlsruhe, Germany See issue: 11/88
- 15–18 21st Intl Thermal Conductivity Conf Lexington, KY Contact: Clifford Cremers [Tel. (606) 257-3585] Univ of Kentucky, Lexington, KY 40506-0046
  - 15–20 OSA Ann Mtg Orlando, FL See issue: 1/88
- 16–18 Intl Top Conf on Phys with Polarized Beams on Polarized Targets
   Spencer, IN Contact: J. Sowinski, [Tel. (812) 855-9365] Indiana Univ Cyclotron Facility, Bloomington, IN 47408
- 16–18 1st Intl Conf on Radioactive Nuclear Beams Berkeley, CA Contact: Ann Fitzgerald, Conf Secretary [Tel. (415) 486-4808] Nuclear Sci Div, 70A-3307, LBL, Berkeley, CA 94720
  - 21–26 61st Ann Mtg S of R Montreal, Canada See issue: 1/88
  - 22–28 2nd Intl Conf on Solid State and Integrated Circuit Tech Beijing, China See issue: 1/89
- 23–27 Intl Symp CNES-Intercosmos: 1st Results of the Phobos Mission and Future Space Exploration of Mars Palais de congrès, Paris, France Contact: C. de Bergh, Observatoire de Paris, 92195 Meudon Cedex, France
- 23–27 36th AVS Natl Vacuum Symp Boston, MA See issue: 7/88
- 26–29 History of Sci Soc Ann Mtg Gainesville, FL Contact: Michael M. Sokal [Tel. (508) 831-5712] History of Sci Soc, 35 Dean St, Worcester, MA 01609

- Dielectric Phenomena Leesburg, VA Contact: Marshall Pace [Tel. (615) 974-5419] Electrical & Computer Eng, Univ of Tennessee, Knoxville, TN 37996-2100 [10 Mar. 89]
- 30–3 5th Intl Symp on the Production and Neutralization of Negative Ions and Beams Upton, NY Contact: Ady Hershcovitch [Tel. (516) 282-4531] BNL, Upton, NY 11973

31-3 25th Anniversary Conf on Frontiers in Phys, High Tech and Mathematics Trieste, Italy See issue: 1/89

#### NOVEMBER 1989

- 5-10 6th Intl Conf on Recent Progress in Many-Body Theories Arad, Israel Contact: Melia-Te'um [Tel. (972) 2-637572] P.O. Box 8388, Jerusalem 91082, Israel Note revised telephone number See issue: 1/89
- 6-10 Applied Geometry Tempe, AZ
   [SIAM] Contact: Vickie Kearn [Tel. (215)
   564-2929] SIAM, 117 South 17th St, 14th
   FI., Philadelphia, PA 19103-5052
- 6-10 36th Natl Vacuum Symp Boston,
   MA [AVS] Contact: Phillip F. Schewe [Tel.
   (212) 661-9404] Public Information, AIP,
   335 E. 45th St, New York, NY 10017
  - 13–17 Mtg APS Div Plasma Phys Anaheim, CA See issue: 1/88
- 14–16 Wksp on Scintillating Fiber Detector Development for the SSC Batavia, IL [US Dept of Energy, Fermi Natl Accerlator Lab, Univ of Notre Dame/Phys SC Detector, Development Group] Contact: Cynthia Scott [Tel. (219) 239-7367] Univ of Notre Dame, Notre Dame, IN 46556
- 16-17 Colloq on Sci, Arms Control and Natl Security Washington, DC [AAAS] Contact: Joan Wrather [Tel. (202) 326-6440] Amer Assoc for the Advancement of Sci, 1333 H St, NW, Washington, DC 20005
- 17–18 Conf on Nonlinear Structures in Physical Systems—Pattern Formation, Chaos and Waves San Jose, CA Contact: L Lam [(408) 924-5261] Phys Dept, San Jose State Univ, San Jose, CA 95192
  - 22-24 1st Eur Conf on Materials Sci and Tech Aachen, Fed. Rep. of Germany See issue: 11/88
  - 26-1 AAPM-RSNA Mtg Chicago, IL See issue: 7/88
- **26–1** ANS Winter Mtg San Francisco, CA See issue: 11/88
- 9 27–1 118th Mtg ASA St. Louis, MO Contact: B. Goodfriend [Tel. 212-661-9404] ASA, 335 E. 45th St., New York, NY 10017 Note revised meeting dates
  - 27-1 MRS Fall Mtg Boston, MA See issue: 1/88
  - 28-1 Conf on Color Discrimination Psychophys Williamsburg, VA See issue: 9/88

#### DECEMBER 1989

 1-5 IAU Symp No 142: Basic Plasma Processes on the Sun Bangalore, India Contact: V. Krishan [Tel. 569951] Indian Inst of Astrophys, Koramangala, Bangalore 560 034, India

- 3-8 Issues in Sci and Tech Policy Williamsburg, VA [The Brookings Institution, Ctr for Public Policy Education] Contact: Stan Wellborn [Tel. (202) 797-6105] The Brookings Institution, 1775 Massachusetts Ave, NW, Washington, DC 20036
  - 4–8 AGU Fall Mtg San Francisco, CA See issue: 1/88
- 11–13 SIAM Conf on Parallel Processing for Scientific Computing Chicago, IL Contact: SIAM Conf Coordinator [Tel. (215) 564-2929] 117 S. 17th St, 14th Floor, Philadelphia, PA 19103-5052

11–21 5th Symposium on Sci and Tech Education for Development Manila, Philippines See issue: 9/88

#### JANUARY 1990

1–5 Intl Conf on Superconductivity
Bangalore, India See issue: 11/88
6–19 21st Intl Cosmic Ray Conf
Adelaide, Australia See issue: 11/88

9–13 175th Mtg AAS Washington, DC See issue: 1/88



# 5.4 Gigabytes Unattended Backup

Digi-Data's GIGASTORE™ provides up to 5.4 Gigabytes of data storage on a single T-120 VHS video cartridge. That permits backup of your largest disk drive on off-hours without an operator.

Utilizing true read-after-write coupled with very powerful error correction, GIGASTORE gives you an unsurpassed error rate of 1 in 10<sup>23</sup> bits. In addition, you get a high speed search capability not available in most 9-track drives.

GIGASTORE can be provided with an interface for IBM PC/XT/AT/PS-2™. It is available with DEC interface for VAX and MicroVAX. It is also available for backup of data on Novell LANs.

Call Digi-Data, an organization with a 25 year history of manufacturing quality tape drives, at (301) 498-0200.

"GIGASTORE is a trademark of Digi-Data Corporation. PC/XT/AT/PS-2 are trademarks of IBM Corporation.



DIGI-DATA CORPORATION

8580 Dorsey Run Road Jessup, MD 20794-9990 (301) 498-0200 Telex 87-580

... First In Value

DEALER DEALER INQUIRIES INVITED

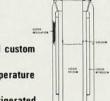
In Europe contact: Digi-Data Ltd. • Unit 4 • Kings Grove • Maidenhead, Berkshire England SL6 4DP • Telephone No. 0628 29555/6 • Telex 847720

Circle number 115 on Reader Service Card

# SUPERCONDUCTING MAGNET SYSTEMS



- Full line of standard magnets
- Custom designs
- # Fields to 12 tesla



- Standard and custom cryostats
- Variable temperature systems
- Low loss refrigerated systems



- Magnet power supplies
- Liquid helium and nitrogen monitors
- \* Cryothermometers



(615) 482-9551 FELEX 883 945 FAX (615) 483-0406 P.O. BOX 548, OAK RIDGE, TN 37831 USA

APS Show - Booth #712 Circle number 116 on Reader Service Card

# GATED INTEGRATOR



Model 4130 will function in a linear integrate-and-hold/reset mode, or, with feedback, as an exponential integrator. Minimum gating time is 30ns., and the droop is extremely low.

Special features, including multiple inputs, a fast input voltage-follower, simplify box-car adaptations for pulse and waveform analysis.

Supporting modules are available: programmable time delays, ramp generator, ratiometer, amplifiers.

#### **EVANS ELECTRONICS**

P.O. Box 5055, Berkeley, CA 94705 Tel. 415-653-3083 22–25 AAPT–APS Joint Winter Mtg At lanta, GA See issue: 9/88

**22–26** Conf on Optical Fiber Communication San Francisco, CA See issue: 9/88

#### FEBRUARY 1990

5–9 Noninvasive Assessment of the Visual System Top Mtg Incline Village, NV See issue: 1/89

5–9 Laser Applications to Chemical Analysis Top Mtg Incline Village, NV See issue: 1/89

#### **MARCH 1990**

12–16 March Mtg APS Anaheim, CA See issue: 7/88

 15–17 CCD Techniques in Opt Astron Charleston, SC Contact: Saul J. Adelman [Tel. (803) 792-6943] Dept of Phys, The Citadel, Charleston, SC 29407

18-23 Symp on Advances in Semiconductors and Superconductors: Phys Toward Device Applications San Diego, CA See issue: 1/89

#### **APRIL 1990**

10-12 2nd New Materials and Their Applications Conf Warwick, UK See issue: 11/88

**16–20** MRS Spring Mtg San Francisco, CA See issue: 7/88

 23–27 15th General Assembly of the Eur Geophysical Soc Copenhagen, Denmark Contact: EGS Office [Tel. (49)-5556-1440] Postfach 49, D-3411 Katlenburg-Lindau, FRG [31 Jan. 90]

#### MAY 1990

**7–11 AGU Spring Mtg** Baltimore, MD *See issue:* 7/88

**21–25** CLEO '90 and IQEC '90 Anaheim, CA See issue: 9/88

21–25 119th Mtg ASA University Park, PA See issue: 7/88

#### **JUNE 1990**

- 4–9 Extragalactic Molecular Clouds: Dynamics and Relation to Star Formation Paris, France Contact: F. Combes, Ecole Normale Superieure
- 6–7 NMR Imaging: Recent Developments and Future Prospects London, UK Contact: The Scientific Mtgs Secretary [Tel. 01-839-5561 ext 278] The Royal Soc, 6 Carlton House Terrace, London SW1Y 5AG
  - **10–15** ANS Annual Mtg Nashville, Tennessee See issue: 11/88
- 18–20 IAU Symp No 143: Wolf-Rayet Stars and Interrelations with Other Massive Stars in Galaxies Indonesia Contact: K. van der Hucht, Lab for Space Res, Netherlands
- 18–22 IAU Symp No 144: The Interstellar Disk-Halo Connection in Galaxies Leiden, the Netherlands Contact: J.B.G.M. Bloemen, Leiden Obs

**24–29 12th Intl Conf on Particles and Nuclei** Cambridge, MA *See issue:* 7/88

#### **JULY 1990**

8–14 17th Intl Symp on Rarefied Gas Dynamics Aachen, Fed. Rep. of Germany See issue: 11/88

- 9–12 3rd Intl Conf on the Structure of Surfaces Shanghai, China Contact: M. A. Van Hove [Tel. (415) 486-6160] MCSD 66-428, LBL, Berkeley, CA 94720
- 19–28 IUCr 15th General Assembly and Intl Cong Bordeaux, France [IUCr] Contact: M. Hospital, Lab de Cristallographie, Universite de Bordeaux 1, 351 Cours de la Liberation, 33405 Talence, France
- 29-5 Sum Sch on Crystallographic Computing Strasbourg Contact: D. Moras, Lab de Cristallographie Biologique, IBMC, 15, rue Descartes, F 67 084 Strasbourg, Cedex

#### AUGUST 1990

5-9 Ann Mtg AAPM St. Louis, MO See issue: 7/88

- 16–22 19th Intl Conf on Low Temperature Phys Brighton, Sussex, UK Contact: Susan Lippmann, Inst. of Phys., 47 Belgrave Square, London SW1X 8QX
- 27–30 Origin and Evolution of Interplanetary Dust Tokyo, Japan Contact: T. Mukai, Kanazawa Inst of Tech
- 27–31 Joint Varenna-Lausanne Intl Wksp on Theory of Fusion Plasmas Varenna, Italy Contact: E. Sindoni [Tel. (2) 2392267] ISPP, 16 Via Celoria, 20133 Milano, Italy [15 June 90]
- 28-5 XXIII General Assembly of the Intl Union of Radio Sci Prague, Czechoslovakia Contact: V. Zima, Czechoslovakian Academy of Sciences, Praha

#### SEPTEMBER 1990

- 4–8 8th General Conf of the Eur Physical Soc Amsterdam, The Netherlands
   Contact: L. Roos, FOM-Inst for Atomic
   and Molecular Phys, PO Box 41883, NL 1009 DB Amsterdam, The Netherlands
- 9-14 8th Intl Conf on Atomic Masses and Fundamental Constants Jerusalem, Israel [Commission on Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants] Contact: N. Zeldes, The Racah Inst of Phys, The Hebrew Univ of Jerusalem, Jerusalem 91904, Israel
- 24–27 Eur Gallium Arsenide Conf St Helier, Jersey, Channel Islands Contact: the Mtgs Officer, the Inst of Phys, 47 Belgrade Square, London SW1X 8QX, England
- 25–5 Wksp on Phys of Alternative Magnetic Confinement: Reversed Field Pinches, Compact Tori, Mirrors, High Density Z Pinches Varenna, Italy Contact: E. Sindoni [Tel. (2) 2392267] ISPP, 16 Via Celoria, 20133 Milano, Italy [1 July 90]

#### **NOVEMBER 1990**

4–9 OSA Ann Mtg and OPTCON Boston, MA [OSA] Contact: OSA [Tel. (202) 223-0920] Meetings Dept., 1816 Jefferson Pl., NW, Washington, DC 20036

5-9 Mtg APS Div Plasma Phys Chicago, IL See issue: 7/88