

calendar

SEPTEMBER 1977

- 12-14 **EMAG'77: Developments in Electron Microscopy and Analysis** [IOP] Glasgow, UK 7/77
- 12-14 **Synchrotron Radiation Instrumentation and Developments** [Organizing Committee] Orsay, France 7/77
- 12-15 **7th European Solid-state Devices Res Conf** [IOP Solid-state Phys subcommittee] Brighton, UK 1/77
- 12-15 **3rd Int Conf on Phys of Narrow-Gap Semiconductors** [Polish Acad of Sci, Univ of Warsaw; IUPAP] Warsaw, Poland [5/30/77] 3/77
- 12-16 **7th Int Vacuum Congress and 3rd Int Conf on Solid Surfaces** [Organizing Committee] Vienna, Austria 7/75; 11/76
- 12-16 **Large-scale Structure of the Universe** [Organizing Committee] Tallinn, USSR 7/77
- 12-16 **13th European Cong on Molecular Spectroscopy** [IUPAC; IUPAP] Wroclaw, Poland 7/77
- 12-17 **Int Symp on Nuclear Collisions and Their Microscopic Description** [Organizing Committee] Bled, Yugoslavia 7/77
- 12-17 **13th Int Conf on Phenomena in Ionized Gases** [IUPAP] Berlin, Dem. Rep. of Germany 7/77
- 13-15 **Ion-Ion and Ion-Solvent Interactions** [Organizing Committee] Oxford, UK 7/77
- 13-16 **4th Int Symp on Nuclear Quadrupole**

- Resonance Spectroscopy** [Organizing Committee] Osaka, Japan 7/77
- 14-15 **Biological Appl of Magnetic Resonance** Dundee, Scotland 7/77
- 14-16 **European Conf on Optical Communication** [Organizing Committee] Munich, Fed. Rep. of Germany 7/77
- 14-16 **3rd Nat'l Quantum Electronics Conf** [Organizing Committee] Southampton, UK 7/77
- 18-23 **4th Int Meeting on Ferroelectricity** [Organizing Committee] Leningrad, USSR 7/77
- 19-21 **WESCON / 77** [Organizing Committee] San Francisco, Cal. 3/77
- 19-21 **• Biennial Polymer Physics Conf** [IOP; Chemical Soc] Shrivvenham, UK (J. V. Champion, Physics Dept, City of London Polytechnic, Jewry St, London EC3N 2EY UK) [6/1/77]
- 19-22 **• 2nd Int Conf on Electronic Properties of 2-dimensional Systems** Berchtesgaden, Fed. Rep. of Germany
Topics: space-charge layers on semiconductor surfaces, superlattices & electrons on liquid helium (*Secr EP 2 DS, Physik Dept E 16, Technische Universität München, 8046 Garching, Fed. Rep. of Germany*)
- 19-22 **50th Anniversary of the Discovery of Electron Diffraction—Int Conf** [IOP] London, UK 7/76
- 19-23 **7th Int Conf on Atomic Collisions in Solids** [Int Committee] Moscow, USSR 1/77
- 19-23 **2nd Ion Mass Spectroscopy and Ion**

Coding: date **subject** [Sponsor] Location (Contact) [abstract deadline] *Physics Today* reference • new listing □ new or revised information

Please Note: follow-up listings give italicized reference date specifying *Physics Today* issue in which further information can be found.

Abbreviations:

AAPM American Association of Physicists in Medicine
AAPT American Association of Physics Teachers
AAS American Astronomical Society
ACA American Crystallographic Association
APS American Physical Society
ASA Acoustical Society of America
AVS American Vacuum Society
OSA Optical Society of America
SPS Society of Physics Students
S of R Society of Rheology

AAAS American Association for the Advancement of Science
AGU American Geophysical Union
ANS American Nuclear Society

ASME American Society of Mechanical Engineers
ASTM American Society for Testing and Materials
EPS European Physical Society
ERDA Energy Research and Development Administration
IAEA International Atomic Energy Agency
IEEE Institute of Electrical and Electronics Engineers
IOP The Institute of Physics
IUPAP International Union of Pure and Applied Physics
NAS National Academy of Sciences
NBS National Bureau of Standards
NRC Nuclear Regulatory Commission
NSF National Science Foundation
ORNL Oak Ridge National Laboratory

This is a complete listing of physics-related meetings known to us. A complete calendar will appear in alternate months (no calendar in other months). Those wishing to submit items should send complete information at least *three months* before the notice should appear.

Radioactive
Sources

NEW
CATALOG
1977

A completely revised
edition including:

- ALPHA SOURCES
- ULTRA LOW ENERGY X-RAY SOURCES
- FISSION FOILS
- LIGHT PULSERS

Write for your copy
of our catalog or
call collect for
technical information
at 213-843-7000.



ISOTOPE PRODUCTS
LABORATORIES

213-843-7000

1800 N. Keystone St., Burbank, Ca. 91502
Circle No. 37 on Reader Service Card

**NEW
in
CAMAC**

12-channel current- integrating ADC



**Optimized for
wide, low-level pulses**

LeCroy's new Model 2249W contains 12 complete 11-bit integrating ADC's in a single-width CAMAC module. It is designed to provide excellent linearity in the digitization of pulses from detectors delivering low instantaneous currents over long periods of time (50 nsec-10 μ sec) such as NaI, CsI, or liquid scintillator. In addition, the 2249W is equally linear for shorter pulses from standard lead glass or plastic scintillation counters.

The 2249W features:

- **Wide dynamic range**—11 bits over $\sim$ 500 pC.
- **High sensitivity**— $\sim$ 0.25 pC/count.
- **Excellent linearity**— $\pm$ 0.05% integral.
- **High data rate**— $<$ 2 μ sec fast clear.
- **Flexible test features**—via front panel or F(25).
- **Fast readout**—Q and LAM suppress modes.

Send for details.

LeCroy
RESEARCH SYSTEMS

LeCROY RESEARCH SYSTEMS CORP.; 700 S. Main; Spring Valley, N.Y. 10977, U.S.A.; (914) 425-2000; TWX: 710-577-2832 • LeCROY RESEARCH SYSTEMS/FAR WEST; 1 First St.; Los Altos, Cal. 94022 • LeCROY RESEARCH SYSTEMS SA; 81 Avenue Louis-Casas; 1216 Colmar-Geneve, Switzerland • LeCROY RESEARCH SYSTEMS LTD.; 74 High Street; Wheatley, Oxfordshire OX9 1XP, U.K. • LeCROY RESEARCH SYSTEMS G.m.b.H.; Treitschkestrasse 3; 6900 Heidelberg; W. Germany.

Microprobe Int Conf [Muenster Univ] Muenster, Fed. Rep. of Germany 5/77

19-23 **8th European Conf on Controlled Fusion and Plasma Physics** [Organizing Committee] Prague, Czech. 7/77

19-23 **5th Colloq on High Resolution Molecular Spectroscopy** [Organizing Committee] Tours France 7/77

19-24 **10th World Energy Conf** [Organizing Committee] Istanbul, Turkey 7/77

20-22 **Non-linear Probs in Stress Analysis** [IOP Stress Analysis Group] Durham, UK 5/77

20-23 **3rd European Solid-state Circuits Conf** [Organizing Committee] Ulm, Fed. Rep. of Germany 7/77

20-24 **1977 Meeting of German Physical Society** Karlsruhe, Fed. Rep. of Germany 7/77

25-27 **Appl of Optical Instrumentation in Medicine—VI** [Soc of Photo-Optical Instru Engin; Soc of Photo Scientists and Engin] Boston, Mass. 7/77

25-28 **Joint Fall Meeting of Nuclear and Basic Sci Divs of Amer. Ceramic Soc** Hyannis, Mass. 7/77

25-1 **28th Int Astronautical Cong/20th Colloquium of Int Inst of Space Law/7th Int Student Conf** [Int Organizing Committee] Prague, Czech. 3/77

26-28 **EASCON / '77** [Organizing Committee] Arlington, Va. 5/77

26-28 **Int Electrical and Electronics Conf and Exhibition** [Organizing Committee] Toronto, Canada 7/77

26-28 • **ERDA Concentrating Collector Conf** [ERDA Div of Solar Energy; Georgia Inst of Tech; ASME Solar Energy Div; Int Solar Energy Soc Engineering Div; Georgia Solar Energy Assoc] Atlanta, Ga. (J. R. Williams, Assoc Dean of Engineering, Georgia Inst of Tech, Atlanta, Ga. 30332) [7/24/77]

26-28 • **ASME Annual Design Engineering Technical Conf** Chicago, Ill. (ASME, United Engineering Ctr, 345 E 47th St, N.Y., N.Y. 10017)

26-30 **Solid-state Physics Meeting** [Organizing Committee] Sunny Beach, Bulgaria 7/77

26-30 **Int Symp on Photo- and Electro-Imaging** [Soc of Photographic Sci & Eng; Soc of Photographic Sci & Tech of Japan] Tokyo, Japan 3/77

27-29 **5th Data Communications Symp** [ACM; IEEE] Snowbird, Utah [5/1/77] 3/77

27-29 **Utilization of Optics in Radar Systems Symp/Workshop** [Soc of Photo-Optical Instru Engin; US Army Ballistic Missile Defense Adv Tech Ctr; OSA; IEEE Aerospace and Electronic Systems Group] Huntsville, Alabama 7/77

27-29 **Power Electronics—Power Semiconductors and Appl** [IEE UK & Rep. of Ireland sections] London, UK 7/77

27-30 **Photovoltaics Solar Energy Conf** [Organizing Committee] Luxembourg 7/77

28 **Appl of Tuneable Lasers** [IOP Spectroscopy & Quantum Electronics Groups] London, UK 7/77

28-30 **Microscopic Physics of Laser Interactions With Solids** [Organizing Committee] Strasbourg, France 7/77

28-30 • **3rd Int Symp on Management of Data Elements in Information Processing** [NBS; US Dept of Commerce] Gaithersburg, Md. (H. E. McEwen, Inst for Computer Sciences and Technology, NBS, Wash., D.C. 20234)

30-1 **Physics of the Solid Earth—APS NY Sect Meeting** Rochester, N.Y. 7/77

OCTOBER 1977

2-4 **Global Growth Alternatives** [Soc for Int Development; Club of Rome; Univ of Houston; Mitchell Energy & Devel Corp] Houston, Texas 9/76

2-5 **5th Biennial Symp on Turbulence** [Univ of Missouri-Rolla, Chem Engin Dept and extension div] Rolla, Mo. [4/1/77] 7/77

2-6 **Applied Electrostatics, Electrophotography and Electrostatic Precipitators** [IEEE Indust Appl Group] Los Angeles, Cal. 3/77

3-5 **2nd Int Topical Conf on High Power Electron and Ion Beam R&D** [Cornell Univ; ERDA; USAF Ofc of Sci Res] Ithaca, N.Y. [5/1/77] 5/77

3-6 **Amer. Soc for Nondestructive Testing: 3rd Quality Testing Show** Detroit Mich. 7/77

3-7 **4th Int Conf on Small-angle Scattering of X-rays and Neutrons** [ORNL; ERDA; US Nat'l Committee for Crystallography; ACA; Int Union of Crystallography] Gatlinburg, Tenn. 7/76

4-9 **Int Conf on Optical Computing in R&D** [Hungarian Acad of Sci] Visegrad, Hungary 5/77

6-7 **9th Southeastern Magnetic Resonance Conf** [Georgia State Univ] Atlanta, Ga. [9/1/77] 7/77

9-14 **2nd Cong of Int Tech** [Int Tech Found; Int Tech Inst; Cong of Int Tech] Pittsburgh, Penna. 7/77

9-14 **Int Conf on Defects in Insulating Crystals** [ERDA; ORNL] Gatlinburg, Tenn. [6/1/77] 5/77

9-14 **Fall Meeting and Symp** [Electrochem Soc] Atlanta, Ga. [5/1/77] 3/77

9-14 • **Energy Options for Developing Areas—The Next 10 Years** [Engineering Foundation] Easton, Md. (EF, United Engineering Ctr, 345 E 47th St, N.Y., N.Y. 10017)

10-14 **Int Symp on Appl of Reliability Tech to Nuclear Power Plants** [IAEA] Vienna, Austria [4/30/77] 5/77

10-14 **1977 Annual Meeting—OSA** Toronto, Canada [7/8/77] 1/77

11-14 • **Hadron Structure '77** [Inst of Phys of Slovak Acad of Sci; Comenius Univ, Dept of Theor Phys; Inst of Phys of Czechoslovak Acad of Sci; Charles Univ Nuclear Ctr] Patria, Czech (S. Dubnicka, Organizing Committee Sec, Inst of Phys, Slovak Acad of Sci, Dubravskáčesta, 899 30 Bratislava 1, Czech) [6/1/77]

14-15 **SPS Meeting** [Zone 10, SPS] Fayetteville, Ark. 7/77

14-16 **3rd Nat'l Quantum Elect Conf** [IOP; IEE; Chem Soc] Southampton, UK 11/76

17-19 **Noise-Con '77** [NASA Langley Res Ctr; Inst of Noise Control Eng] Hampton, Va. 5/77

17-21 **Int Symp on Neutron Inelastic Scat-**

tering [IAEA] Vienna, Austria [5/16/77] 5/77

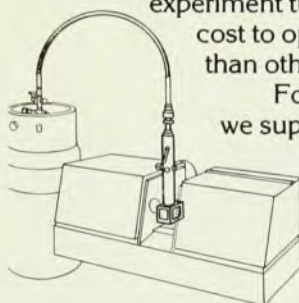
- 18-19 • **Marshall Space Flight Ctr / University of Alabama-Huntsville Data Management Symp** Huntsville, Alabama (NASA / UAH Data Mangmt Symp, Johnson Environmental & Energy Ctr, P.O. Box 1247, Huntsville, Ala.) [7/15/77]
- 18-20 **23rd AAS Meeting/Indust of Space Conf** [AIAA; IEEE; Brit. Interplanetary Soc; Int Inst of Space Law; Amer. Soc for Quality Control; Stanford Res Inst; L-5 Soc; Nat'l Space Inst] San Francisco, Cal. [5/1/77] 5/77
- 18-21 **30th Gaseous Electronics Conf—APS Topical Conf** Palo Alto, Calif. 7/77
- 19-21 • **Nuclear Science/Nuclear Power Systems Conf** [NPS] San Francisco, Calif. (F. A. Kirsten, Lawrence Berkeley Lab, Univ of Calif., Berkeley, Calif. 94720)
- 21-22 • **APS Sectional Meeting** [Ohio Sect] Oxford, Ohio (W. W. Havens, Jr, APS, 335 E 45th St, N.Y., N.Y. 10017)
- 23-26 **24th Canadian Spectroscopy Symp** [Spec Soc of Canada] Ottawa, Canada 11/76
- 23-27 **48th Annual Meeting—Soc of Rheology** Madison, Wisc. 5/77
- 23-28 • **Solar Energy Storage and Transportation Applications** [Engineering Foundation] St. Simons Island, Ga. [EF, United Engineering Ctr, 345 E 47th St, N.Y., N.Y. 10017]
- 24-25 **Recent Adv in Psychophysical and Visual Aspects of Image Evaluation** [OSA; Soc of Photo Scientists and Engin] Rochester, N.Y. 7/77
- 24-25 □ **10th Annual Synch Rad Users Group** Stoughton, Wisc. (E. Rowe, P. O. B. 6, Stoughton, Wisc. 53589)
- 25-28 **Radar '77** [IEE; IEEE; Inst of Math and Its Appl; IOP; Inst for Elect and Radio Eng] London, UK 1/77
- 25-28 **7th Symp on Eng Problems of Fusion Res** [ORNL, Fusion Energy Div; IEEE Nuclear & Plasma Sci Soc; ANS Div of Controlled Nuclear Fusion; ERDA Div of Magnetic Fusion Energy] Knoxville, Tenn 3/77
- 26-28 **1977 Ultrasonics Symp** [IEEE Group of Sonics and Ultrasonics] Phoenix, Ariz. 3/77
- 26-28 • **Assoc for Aerosol Research—5th Annual Conf** Karlsruhe, Fed. Rep. of Germany (R. Jaenicke, Max-Planck Inst, P.O. Box 3060, D-6500 Mainz, Fed. Rep. of Germany)
- 27-28 □ **4th Annual Stanford Synch Rad Users Group** [SLAC] Stanford, Ca. (S. Doniach, Bin 69, SLAC, P. O. B. 4349, Stanford, Ca. 94305)
- 27-28 • **Fiber Soc Symp on Cellulosic Fibers** Raleigh, N. Caro. Topics: material science & tech of cellulose microfibrils . . . (Fiber Soc, P.O. Box 625, Princeton, N.J. 08540)
- 27-29 **APS Nuclear Physics Div Meeting** Rochester, N.Y. 7/77
- 27-30 **9th Annual Meeting—Planetary Science Div of AAS** Boston, Mass. [9/1/77] 7/77
- 29 **Fall Meeting of New England Section of AAPT** Wellesley, Mass. 7/77
- 31-4 **Int Symp on Radioimmunoassay in Medicine** [IAEA] W. Berlin, Fed. Rep. of Germany 7/77

There's more to cryogenic cooling than getting research samples to 2° K.

A cryogenic system should cool. But it should also be accurate, economical, versatile, compact, and easy to use.

Only HELI-TRAN® systems fit that description.

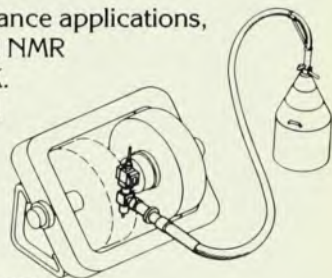
Our LT-3-110 model, for example, cools samples from 300° K to 2° K. It's precise: provides temperature stability of $\pm 0.01^\circ\text{K}$ in the automatically controlled model. It operates in any position, permits rotation of samples, offers fast experiment turnaround time. The cost to operate is much less than other helium devices.



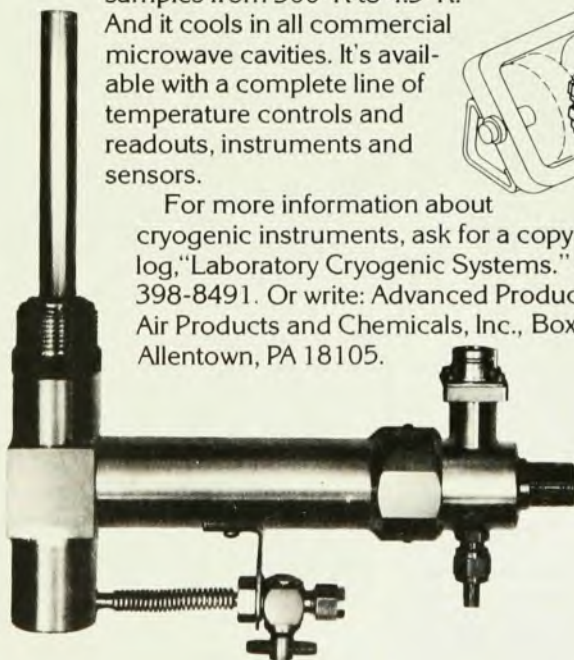
For versatility and performance, we supply specialized accessories for more than 25 applications, including spectroscopy, UHV, resistance measurements, IR detectors, lasers, X-Ray diffraction, Mossbauer Effect, etc.

If you're interested in magnetic resonance applications, our LTD-3-110 model cools ESR and NMR samples from 300° K to 4.5° K.

And it cools in all commercial microwave cavities. It's available with a complete line of temperature controls and readouts, instruments and sensors.



For more information about cryogenic instruments, ask for a copy of our catalog, "Laboratory Cryogenic Systems." Call (215) 398-8491. Or write: Advanced Products Department, Air Products and Chemicals, Inc., Box 538, Allentown, PA 18105.



Air Products

CRYOGENIC SYSTEMS

Circle No. 39 on Reader Service Card

- 2-5 **IAU Symp No. 80: Hertzsprung-Russell Diagram** [Organizing Committee] Wash., D.C. **Topics:** life & work of H. N. Russell, spectral classif, stellar evolution, distance-scale. 7/77
- 4-5 **Texas Sect AAPT—Fall Meeting** Dallas, Tx. 7/77
- 4-5 **35th Annual ACA Pittsburgh Diffraction Conf** Buffalo, N.Y. 7/77
- 4-5 **16th Eastern Theor Phys Conf** [College of William & Mary] Williamsburg, Va. 3/77
- 5 **AAPT N and S Calif. Sects—Fall Meeting** Pomona, Calif. 7/77
- 5 • **Annual Fall Meeting—AAPT Iowa Section** Cedar Rapids, Iowa (W. Azbell, 502 4th St, SW, Waverly, Iowa 50677)
- 6-11 **4th Joint Conf on Sensing of Environmental Pollutants** [Organizing Committee] New Orleans, La. [5/15/77] 5/77

- 7-9 **Conf on Processing of Crystalline Ceramics** [N. Carolina State Univ] Raleigh, N.C. 5/77
- 7-11 **Int Seminar on Magnetism** [Tech Univ Dresden, Phys Section; Inst for Solid-state Phys and Mat Sci, Acad of Sci of GDR] Dresden, Dem. Rep. of Germany 5/77
- 7-11 **APS Topical Conf: Magnetism and Magnetic Mat** [AIP; IEEE] Minneapolis, Minn. [7/22/77] 3/77
- 7-11 • **APS Plasma Physics Div Meeting** Atlanta, Ga. (W. W. Havens, Jr, APS, 335 E 45th St, N.Y., N.Y. 10017) [8/12/77]
- 8-11 **24th Nat'l Vac Symp and Confs** [AVS; Steering Committee] **Topics:** surface sci, thin films, vac tech, vac metallurgy Boston, Mass. [7/8/77] 3/77
- 10-11 **Chem and Physical Processes in Combustion** [E Sect, Combustion Inst] Hartford, Conn. [8/1/77] 7/77
- 14-15 **11th LAMPF Users Group Meeting** [LAMPF Users Group, Inc., LASL] Los

Alamos, N. Mex. 3/77

- 21-23 **SPS Symp/SE Sect APS Meeting** Miami Beach, Fla. 7/77
- 21-23 **Meeting of Fluid Dynamics Div of APS** Bethlehem, Penna. 7/77
- 28-2 **Protons and Ions in Fast Dynamic Phenomena** [Soc de Chimie Physique] Paris, France [6/1/77] 5/77
- 29-1 • **9th Annual Precise Time and Time Interval Applications and Planning Meeting** [Naval Electronic Systems Command; NASA, Goddard Space Flight Ctr; Naval Res Lab; Naval Observatory; Defense Communications Agency] Greenbelt, Md. (A. C. Johnson, Publicity Chairman, Naval Observatory, Time Service Div, 62L, Wash., D.C. 20390)
- 29-3 **67th Physics Expo of the French Physical Soc** Paris, France 7/77
- 30-1 **Present Status of Chemical Appl of Lasers** [Organizing Committee] Chapel Hill, N. Carol. 7/77

SHORT COURSES

12-16 SEPTEMBER 1977

Fiber and Integrated Optics [George Wash Univ] Wash., D.C. 7/77 To be repeated 19-23 September

19-20 SEPTEMBER 1977

Practical Optics: Specifications for Systems and Components [Univ of Wisc. Dept of Engineering] Madison, Wisc. (Dept of Engineering, Univ of Wisc. Extension, 432 N Lake St, Madison, Wisc. 53706)

19-20 SEPTEMBER 1977

Non-destructive Examination of Boilers and Pressure Vessels [ASME] Houston, Tex. (ASME, United Engineering Ctr, 345 E 47th St, N.Y., N.Y. 10017)

26-30 SEPTEMBER 1977

Spread-spectrum Communication Systems [George Wash Univ] Wash., D.C. 7/77

26-30 SEPTEMBER 1977

Fundamentals of Plastics [New York Univ School of Continuing Educ] N.Y., N.Y. (H. E. Kaplan, N.Y. Management Ctr, 360 Lexington Ave, N.Y., N.Y. 10017) To be repeated 28 November-2 December in Chicago.

27 SEPTEMBER-1 OCTOBER

Laser Technology—Recent Advances and Applications [George Washington Univ] Wash., D.C. (Continuing Engineering Educ, GWU, Wash., D.C. 20052)

13-15 OCTOBER 1977

Noise Control [Inst of Noise Control of Engin] Hampton, Va. 7/77 To precede Noise-Con '77 Conf

23 OCTOBER 1977

Short Course on Rheology [S of R] Madison, Wisc. **Topics:** properties of polymeric materials, models of rheological behavior, failure, role of rheological properties (Soc of Rheology, AIP, 335 E 45th St, N.Y., N.Y. 10017) To precede the 48th Annual Meeting of the Soc of Rheology.

31 OCTOBER-4 NOVEMBER

Microprocessor Systems and Applications [Univ of Texas—Austin] Austin, Tex. (Engineering Inst, College of Engineering, Cockrell Hall 2.102, Univ of Texas at Austin, Austin, Tex. 78712)

7-11 NOVEMBER 1977

Short Courses in Vacuum Science and Technology [AVS] Boston, Mass. **Topics:** fundamental theory through state-of-the-art, equip, applications 7/77 To be held in conjunction with the AVS 24th Nat'l Symp and Vacuum Show

14-18 NOVEMBER 1977

15th Annual Reliability Engineering and Management Inst [Univ of Ariz.; Honeywell Info Systems; Ariz. Computer Operations-Phoenix] Tucson, Ariz. 7/77

14-18 NOVEMBER 1977

Workshop on Acoustical Modeling—IV [Mass. Inst of Technology] Cambridge, Mass. (AM IV, rm 9-335, Ctr for Advanced Engineering Study, MIT, Cambridge, Mass. 02139)

21-25 NOVEMBER 1977

4th Training Course in Fluid Rheology [S of R; Inst of Chem Engineers] Stevenage, UK (B. Richmond, Warren Spring Lab, Dept of Industry, P.O. Box 20, Gunness Wood Rd, Stevenage, Hertfordshire SG1 2BX, UK)

DECEMBER 1977

- 5-7 **1977 Winter Simulation Conf** [NBS] Gaithersburg, Md [4/15/77] 3/77
- 5-7 **Nat'l Telecommunications Conf** [Organizing Committee] Los Angeles, Calif. 7/77
- 5-7 **IEEE 1977 Int Electron Devices Meeting** Wash., D.C. 7/77 [8/8/77]
- 5-7 • **Alternative Energy Sources Nat'l Symp** [Univ of Miami] Miami Beach, Fla. (T. N. Veziroglu, Univ of Miami, P.O. Box 248294, Coral Gables, Fla. 33124)
- 5-7 • **APS Electron and Atomic Physics Div Meeting** Knoxville, Tenn. (W. W. Havens, Jr, APS, 335 E 45th St, N.Y., N.Y. 10017)
- 5-9 **Int Symp on Nat'l and Internat'l Standards for Radiation Dosimetry** [IAEA] Atlanta, Ga. [6/1/77, in Vienna] 3/77
- 13-16 **Winter Meeting—ASA** Miami Beach, Fla. 5/77

JANUARY 1978

- 3-7 **Protostars and Planets** [Int Astronomical Union] Tucson, Ariz. 7/77
- 4-6 • **15th Annual Solid-state Physics Conf** [IOP Solid-state Phys Sub-committee] Coventry, UK (Meetings Ofcr, IOP, 47 Belgrave Sq, London SW1X 8QX UK) [11/1/77]
- 4-7 **Int Symp on Biomolecular Structure, Conformation, Function, Evolution** [Organizing Committee] Madras, India 7/77
- 11-13 **3rd APS Topical Conf on Radio Frequency Plasma Heating** Pasadena, Calif. 7/77
- 11-14 **AAS Dynamical Astronomy Div Meeting** Austin, Tex. (P. K. Seidelmann, US Naval Observ, Wash., D.C. 20390)
- 16-18 **IEEE/OSA Meeting on Integrated and Guided Wave Optics** Salt Lake City, Utah [10/20/77] 7/77
- 16-19 **Health Phys Soc 11th Midyear Topical Symp—Radiation Instru** San Diego, Calif. 7/77
- 22-26 **Joint Annual Meeting—APS/AAPT** San Francisco, Cal. 3/77

SURFACE SCIENCE THIN FILMS ULTRA HIGH VACUA

24th National Symposium
of the
American Vacuum Society
Nov. 8-10, 1977
Hynes Auditorium
Boston, Massachusetts

MEETING

Surface Science, Thin Film
Technology, Vacuum
Metallurgy, and Vacuum
Science and Technology
sessions include:

- Structure determination on solid surfaces
- Adsorption and surface chemistry
- Electron spectroscopy for surface science
- Reactive ion etching
- Preparation and properties of optical thin films
- New film deposition techniques
- Ion-material interactions
- Vacuum systems for CTR devices
- Production systems for vacuum processing

Short courses offered on various aspects of vacuum science and technology.

Program Chairman:

W. R. Bottoms

Program Chairman:

W. R. Bottoms

Varian Vacuum Division
Palo Alto, Ca 94303

SHOW

Advanced Vacuum	Inficon
Airco-Temescal	Inland Vacuum
Air Products and Chemicals	Int'l Plasma
Alcatel	ISA Riber
A & N Corp	Kearns Group
Balzers	Kevex
Central Scientific	Kimball Physics
Ceramaseal	Kinney Vac.
CHA Industries	Leybold-Heraeus
Circuits Processing	R. D. Mathis
Coates & Welter	E. McGrath
Commonwealth Scientific	MDC
Cooke Vacuum	MKS Insts
Crawford Fitting	Molecular Distillations
CTI	Molytek
CVC	Neslab
Dalton Electric	Pascal Ind.
DW Industries	Physical Electronics
Edwards High Vac.	Plasma-Therm
EM Labs	Polycold Systems
Evey Eng	Sargent-Welch
Extranuclear	Sloan Technology
Ferrofluidics	Specialty Metals
GCA/McPherson	Thermionics
GCA/Precision Scientific	3M
GCA/Vac Ind	Torr Vacuum
Gould/Datametrix	Ultek/PE
Gould/Lammert	Ulvac
Granville-Philips	UTI
Haselden	VACO
Hastings-Raydist	Vacuum Barrier
High Vac App	Vacuum Res
HPS	Varian
Huntington	Veeco
	Westinghouse

Show Information:

Ed Greeley, A.I.P.
335 E. 45th St.
N.Y., N.Y. 10017

more for less

Our new capacitance transducer features more performance for your \$ than any other vacuum/pressure transducer.



Type-590
Vacuum/Pressure Transducer

Skeptical?
Compare our spec's:

- 5000 Torr to less than 10^{-3} Torr (100 psi to less than 10^{-5} psi)
- Accuracy: 0.15 to 0.05% of reading.
- Repeatability: 0.005%
- True total-pressure measurement, independent of gas composition.
- Absolute, differential, or gauge pressure measurements.
- Models compatible with UF_6 , HF, HCl, and other corrosives.
- One sensor covers over 4 decades of pressure

**All this
at prices from
\$865⁰⁰**

For more information, contact

Gould Inc., Control and Systems Division
340 Fordham Road, Wilmington, Mass. 01887 USA
Phone 617-658-5410 • TWX 710-347-7672



GOULD

Manufacturer of Datametrix Products

Circle No. 40 on Reader Service Card

LAKE SHORE CRYOTRONICS

is

The Answer

For all of your
CRYOGENIC NEEDS!



Full Range Digital Cryogenic Thermometers Models DRC-7 & DRC-70

- 1 to 400K Range
- Recorder Output & Optional BCD Output
- Optional 10 Sensor Input
- Interchangeable Sensors
- Solid State Construction & Reliability
- Model DRC-7: 1K Resolution
- Model DRC-70: 0.1K Resolution

The DRC-7 & DRC-70 offer for the first time, full range temperature indication from 1 to 400 Kelvin with completely interchangeable sensors.

The optional BCD output allows one to incorporate these instruments into data acquisition systems where the number of sensors can range from one to several hundred sensors.

The standard recorder output allows one to continuously record temperature as a function of virtually any variable.

The unique design and the use of the proven DT-500 Silicon Diode sensor make the DRC-7 & DRC-70 the obvious choice for both routine or special lab requirements.

For details and literature write,
call, or telex



**LAKE SHORE
CRYOTRONICS, INC.**

9631 Sandrock Rd., Eden, N.Y. 14507
(716) 992-3411

Telex 91-396 CRYOTRON EDNE

Contact us direct,
or our representatives

Southern New Jersey, Eastern Pennsylvania, Maryland,
District of Columbia, Virginia and Delaware

Tyler Griffin Company
46 Darby Road, Paoli, Pennsylvania 19301
(215) 644-7710

Baltimore - Ask Operator for Enterprise 9 7710
Washington, D.C. - Ask Operator for Enterprise 1 7710

New England States

Bordewick Engineering Sales Co., Inc.
427 Washington Street
Norwell, Massachusetts 02061
(617) 659-4915

In Europe: Cryophysics

Bedford, England Geneva, Switzerland
(856) 340257 (22) 329520
Darmstadt, W. Germany Versailles, France
(615) 76051 (1) 9506578

Circle No. 41 on Reader Service Card

FEBRUARY 1978

- 7-9 **CLEOS '78—IEEE/OSA Conf** San Diego, Calif. 7/77 [9/30/77]
- 2-17 **Annual Meeting of Amer. Assoc for the Adv of Sci Wash., D.C.** 7/77
- 27-3 • **1978 Pittsburgh Conf—Analytical Chemistry and Applied Spectroscopy** Cleveland, Ohio (R. W. Baudoux, US Steel Corp, Res Lab, MS 57, Monroeville, Penna. 15146) [8/29/77]

MARCH 1978

- 1-3 **100th Anniversary of Liquefaction of Air/Adv in Refrig at Lowest Temps Conf** [Int Inst of Refrigeration] Zurich, Switz. 7/77
- 6-10 • **IAEA Symp on Export of Nuclear Power Plants Vienna, Austria** (J. H. Kane, Ofc of Technical Info, US ERDA, Wash., D.C. 20545) [9/15/77]
- 19-24 **ACA Oklahoma Meeting** Norman, Okla. 7/77
- 22-24 **APS Topical Conf on Phys of SiO₂ and its Interfaces** Yorktown Heights, N.Y. [11/28/77] 7/77
- 27-30 **APS General Meeting** Washington, D.C. 3/77
- 27-31 • **AAS High Energy Astrophysics Div Meeting** La Jolla, Cal. (R. Novick, Astrophysics Lab, Columbia Univ, N.Y., N.Y. 10027)
- 29-1 • **Submillimeter Waves—3rd Int Conf** [OSA; IEEE; IOP] Guildford, UK (K. J. Button, Mass. Inst of Tech Nat'l Magnet Lab, Cambridge, Mass. 02139) [10/1/77]

APRIL 1978

- 3-5 • **APS Topical Conf: Atomic Scale Structure of Amorphous Solids** Yorktown Heights, N.Y. (W. W. Havens, Jr, APS, 335 E 45th St, N.Y. 10017)
- 3-7 **3rd Int Conf on Plasma Surface Interactions in Controlled Fusion Devices** [Organizing Committee] Abington, UK 3/77
- 4-6 **European Conf on Optical Sys and Appl** [IOP Quantum Elect Group] Brighton, UK 5/77
- 5-7 • **IOP Nuclear Physics Sub-committee Meeting** Edinburgh, UK (Meetings Ofc, IOP 47 Belgrave Sq, London SW1X 8QX UK)
- 10-12 **IEEE Int Conf on Acoustics, Speech, Signal Processing** Tulsa, Okla. [9/22/77] 7/77
- 10-13 • **9th Materials Res Symp: Trace Organic Analysis** [NBS] Gaithersburg, Md. (S. N. Chesler, Analytical Chemistry Div, NBS, Wash., D.C. 20234) [9/15/77]
- 16-18 • **IEEE Region 5 Annual Conf: Energy '78** Tulsa, Okla. (R. Ramakumar, Technical Program Chairman, School of Electrical Engineering, 202 Engineering South, Okla. State Univ, Stillwater, Okla. 74074) [12/16/77]
- 17-20 **10th Nat'l Atomic and Molecular Phys Conf** [Atomic and Molecular Phys Group, IOP] Egham, UK 5/77
- 23-28 **3rd Int Symp on Natural Radiation**

Engineer

ASSISTANT DEVELOPMENT ENGINEER

Super Conducting Technology

Highly respected educational and research institution seeks a motivated, dedicated individual with a degree in Engineering as well as 2 or more years of applicable experience and/or education to accept this challenging assignment in plasma physics.

The selected candidate, who must be familiar with super conducting technology, will participate in the construction and design of super conducting plasma confinement devices, including "Dewar", floating rings and transfer lines. Will additionally join a top team of Physicists in researching into super conducting sheets and thin film coatings.

Salary begins at \$1429 per month, plus exceptional benefits and a challenge-filled, productive work environment. Interested candidates are invited to submit resumes, complete with salary details, to:

Box #977D
PHYSICS TODAY
335 E. 45th St.
N.Y., N.Y. 10017

An Equal Opportunity Employer

TECHNISCHE HOCHSCHULE DARMSTADT

Im Fachbereich Physik ist am Institut für Festkörperphysik die

Professur H 4 für Theoretische Physik (Kenn-Nr. 1/6 1977)

wieder zu besetzen.

Die Arbeitsrichtung der Bewerber sollte die Theoretische Festkörperphysik sein. Kooperation mit bereits bestehenden Arbeitsgruppen und Mitarbeit im Sonderforschungsbereich 65 "Festkörperspektroskopie Darmstadt—Frankfurt" sind erwünscht.

Es wird ferner die Beteiligung an der allgemeinen Lehre in theoretischer Physik erwartet.

Schwerbehinderte werden bei gleicher Qualifikation bevorzugt.

Bewerbungen mit Lebenslauf, Schriftenverzeichnis und einer kurzen Darstellung der bisherigen Tätigkeiten werden bis 15.10.1977 an den Präsidenten der Technischen Hochschule Darmstadt, Karolinenplatz 5, 6100 Darmstadt, erbeten.

Environment [Univ of Texas; ERDA]
Houston, Tex. [9/30/77] 5/77

- 23-29 • **6th Engineering Found Conf on Automated Cytology** Schloss Elmau, Fed. Rep. of Germany (EF, United Engineering Ctr, 345 E 47th St, N.Y., N.Y. 10017) [1/31/78]
- 24-27 **APS Spring Meeting** Wash., D.C. 3/77

MAY 1978

- 7-12 • **Electrochemical Soc Meeting and Symp** Seattle, Wash. **Topics:** solid-state chemical sensors . . . (L. D. Locker, Solid State Sensor Co, 5600 Peach Blossom Pl, Ft Lauderdale, Fla. 33319)
- 9-12 • **INTERMAG '78** [IEEE Magnetics Soc; Assoc Elettrotecnica Italiana; Soc di Fisica] Florence, Italy (D. A. Thompson, IBM Res Ctr, Yorktown Heights, N.Y. 10598) [12/15/77]
- 16-19 **ASA Spring Meeting** Providence, Rhode Island 5/77
- 22-25 • **6th Int CODATA Conf** [Int Council of Scientific Unions] Taormina, Italy (CODATA Secr, 51 Blvd de Montmorency, 75016 Paris, France)
- 24-26 • **OSA Topical Meeting on Picosecond Phenomena** Hilton Head, S. Caro. (OSA, 2000 L St, NW, Suite 620, Wash., D.C. 20036)

JUNE 1978

- 26-30 • **8th US Nat'l Cong of Applied Mechanics** [US Nat'l Committee on Theor and Appl Mech] Los Angeles, Cal. (J. D. Cole, Mechanics and Structures Dept, School of Engineering and Appl Sci, Univ of Cal., Los Angeles, Cal. 90024) [12/31/77]

JULY 1978

- 3-7 **Heating of Toroidal Plasmas: Joint Varenna—Grenoble Int Symp** [Organizing Committee] Grenoble, France 5/77
- 3-7 **4th Int Meeting on Nuclear Magnetic Resonance Spectroscopy** [Organizing Committee] York, UK 7/77
- 3-8 • **11th Int Symp on Rarefied Gas Dynamics** Cannes, France (F. M. Devienne, Lab de Physique Moléculaire des Hautes Energies, BP N° 2, 06530 Peymeinade, France)
- 4-7 **7th Int Cryogenic Eng Conf and Exhibition** [Int Cryogenic Eng Committee] London, UK 5/77
- 6-8 • **Int Conf on Solid Films and Surfaces** [Japan Soc of Applied Physics Thin Film and Surface Physics Div] Tokyo, Japan (Conf Secr, ICSFS, R. Ueda, Appl Phys Dept, School of Sci and Engineering, Waseda Univ, 4-170 Nishi-Ohkubo, Shinjuku-ku, Tokyo, 160 Japan) [12/31/77]
- 16-20 **4th Nat'l Conf of Amer. Assoc for Crystal Growth** Wash., D.C. 7/77
- 23-27 • **INTER/MICRO '78** [McCrone Res Inst] Chicago, Ill. (R. I. Johnson, MRI, 2508 S Michigan Ave, Chicago, Ill. 60616)

AUGUST 1978

- 1-9 **9th Int Cong on Electron Microscopy** [Organizing Committee] Toronto, Canada 7/77
- 7-11 • **6th Int Heat Transfer Conf** Toronto, Canada (R. W. Dolan, 6th IHTC, Nat'l Res Council of Canada, Ottawa, Ontario K1A 0R6, Canada)
- 20-25 • **17th Int Symp on Combustion** [Combustion Inst] Leeds, UK (R. A. Strehlow, 17th IS on C, 105 Transportation Bldg, Univ of Ill., Urbana, Ill. 61801) [12/15/77]
- 22-25 • **Australian Conf on Electron Spectroscopy** [Austr Inst of Physics; Austr Chemical Inst] Melbourne, Australia (R. Leckey, Physics Dept, La Trobe Univ, Bundoora, Victoria 3083, Austr.)
- 24-30 • **8th Int Conf on Few Body Systems and Nuclear Forces** Graz, Austria (H. Zankel, Inst für Theoretische Physik, Universität Graz, Universitätsplatz 5, A-8010 Graz, Austria)
- 30-2 • **Conf on Physics of Metallic Rare-earth and Actinides** Saint Pierre de Chartreuse, France (R. Lemaire, Lab de Magnetisme du CNRS, 166X 38042 Grenoble, France)

SEPTEMBER 1978

- 10-17 • **Int Commission for Optics—11th Meeting** Madrid, Spain (ICO 11, Sociedad Española de Optica, Serrano, 121 Madrid 6, España)
- 11-14 • **Int Conf on Defects and Radiation Effects in Semiconductors** Nice, France (J. H. Albany, CEN Saclay, SCPh, 91190 Gif-sur-Yvette, France)
- 11-15 • **4th Int Thin Films Cong: Thin Film Properties in Relation to Structure** [IOP] Loughborough, UK (C. J. Todd, Post Office Res Ctr, Martlesham Heath, Ipswich IP5 7RE, UK)
- 18-22 • **3rd Int Symp on Neutron Capture Gamma Ray Spectroscopy and Related Topics** [Brookhaven Nat'l Lab] Upton, N.Y. (R. E. Chrien, BNL, Physics Dept Bldg 510A, Upton, N.Y. 11973)
- 25-29 • **4th Genl Conf of European Physical Society** [EPS; IOP] York, UK **Topics:** modern optics, surface phys, phase transitions, nuclear astrophys, hot plasmas, quarks (EPS 4, Univ of York, Heslington, York YO1 5DD, UK)

OCTOBER 1978

- 13-14 • **APS Sectional Meeting** [Ohio Sect] Columbus, Ohio (W. W. Havens, Jr, APS, 335 E 45th St, N.Y., N.Y. 10017)
- 26-28 • **APS Sectional Meeting** [SE Sect] Blacksburg, Va. (W. W. Havens, Jr, APS, 335 E 45th St, N.Y., N.Y. 10017)
- 30-3 • **Annual Meeting—OSA** San Francisco, Cal. (OSA, 2000 L St, NW, Suite 620, Wash., D.C. 20036)

NOVEMBER 1978

- 20-22 • **APS Fluid Dynamics Div Meeting** Los Angeles, Cal. (W. W. Havens, Jr, APS, 335 E 45th St, N.Y., N.Y. 10017)

TWINS



9824
BIALKALI
300-650 NM

9798
S-20
200-850 NM

New 30 mm photomultipliers from EMI mechanically and electrically interchangeable with earlier EMI types such as 9524, 9592, 9529. 9824 has a bialkali cathode giving good Q.E. with very low dark current and high gain. 9798 has a UV window which combined with its S-20 cathode gives a wide spectral range (200-850 nm). Either type can be had with spectroil window for extended UV or low background applications.



For Photon Counting, RFI/QL-30F slim-line housings complete with potted divider chain are available for all 30 mm tubes. Available from stock. Details from:



EMI GENCOM INC.

80 EXPRESS ST., PLAINVIEW, NY 11803
TEL: 516-433-5900. TLX: 510-221-1889

Circle No. 42 on Reader Service Card