

calendar

NOVEMBER 1980

- 16-21 **ANS Winter Meeting** Washington, D.C. 9/79
- 16-21 **Meeting on Thermophys Properties of Composite Materials** Chicago, Illinois 9/80
- 17-21 **ASA Meeting** Los Angeles, Cal. 9/79
- 17-21 **Materials Res Soc Annual Meeting** Boston, Massachusetts 7/80
- 21-22 **19th Eastern Theoretical Phys Conf** Piscataway, N.J. 9/80
- 23-25 **Meeting of APS Fluid Dynamics Div** Ithaca, N.Y. 9/80
- 24-27 **2nd Int Conf on Low Level Counting: Low Radioactivities '80** Strbske Pleso, Czechoslovakia 9/80
- 25-28 **Wrkshp: From Collective States to Quarks in Nuclei** Bologna, Italy 7/80

DECEMBER 1980

- 1-3 **Meeting of APS Electron & Atomic Phys Div** Los Angeles, Cal. 9/79

- 1-4 **Atomic and Nuclear Methods in Fossil Energy Res** Mayaguez, Puerto Rico 11/79
- 2-4 **12th Annual Precise Time and Time Interval Applications and Planning Meeting** Greenbelt, Maryland 7/80
- 2-4 **Topical Conf on Compact Toroid Res** Los Alamos, New Mexico (Harry Dreicer, Los Alamos Sci. Lab., PO Box 1663, Los Alamos, New Mexico 87545)
- 3-5 **Topical Meeting on Infrared Lasers** Los Angeles, California 7/80
- 7-11 **Nat Conf on Renewable Energy Tech** Honolulu, Hawaii 9/80
- 8-12 **AGU Fall Meeting** San Francisco, Cal. 11/79
- 9-11 **Meeting on Structure and Mobility in Molecular and Atomic Glasses** New York, N.Y. 9/80
- 9-11 **Sputter and Plasma Etch School and Conf** [Materials Res. Corp.] Scottsdale, Arizona (Conf. Coordinator, Rosemary McPhillips, Materials Res. Corp., Orangeburg, N.Y., 10962)
- 10-12 **Conf on How to Successfully Keep Res and Development on Track** [American U.] Reston, Virginia (Robert Szakonyi, Ctr. for Tech.

Coding: date title [sponsor] location (contact) [abstract deadline] PHYSICS TODAY issue containing full listing

Please note: A calendar entry preceded by an → is a new and complete listing. A ● denotes an entry that contains additional or revised information. An entry not preceded by either symbol is an abridged version of a complete listing previously published in PHYSICS TODAY. The date at the end of an abridged entry specifies the issue in which the item originally appeared.

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
DOE	Department of Energy

DPG	Deutsche Physikalische Gesellschaft
EPS	European Physical Society
IAEA	International Atomic Energy Agency
IAU	International Astronomical Union
IEEE	Institute of Electrical and Electronics Engineers
IOP	The Institute of Physics
IUPAP	International Union of Pure and Applied Physics
IUPAC	International Union of Pure and Applied Chemistry
NAS	National Academy of Sciences
NBS	National Bureau of Standards
NRC	Nuclear Regulatory Commission
NRL	Naval Research Laboratory
NSF	National Science Foundation
ONR	Office of Naval Research

A calendar of physics-related meetings is included only in alternate (odd-numbered) months. Send information to: Calendar, PHYSICS TODAY, 335 45th Street, New York, N.Y. 10017. A notice should be timed to arrive three months before the listing should appear.

Hi-Vacuum Feedthrus with Standard Connectors



- Bakeable to 450°C*
- Provide quick disconnect of shielded leads
- Hi-alumina ceramic-metal construction
- Single or multiple units supplied in weldable adapters or standard vacuum flanges

*With lead disconnected



Request Cat. 7601 CC with details, drawings, ordering info.

Ceramaseal, Inc.

A SUBSIDIARY OF INTERPACE

NEW LEBANON CENTER, NEW YORK 12126
(518) 794-7800 • TELEX 145442

and Admin., American U., Washington, D.C. 20016)

- 14-19 **Lasers '80**, New Orleans, Louisiana 7/80
- 15-17 → **Symp: Tech Applications Associated with Fusion Energy** Coral Gables, Florida (T. Nejat Veziroglu, U. Miami, Clean Energy Res. Inst., PO Box 248294, Coral Gables, Florida 33124)
- 15-19 **Seminar on Selection and Implementation of Safety Standards for Nuclear Power Plants** Vienna, Austria 7/80
- 15-19 **10th Texas Symp on Relativistic Astrophys** Baltimore, Md. 9/80
- 16-19 → **Int Conf on Valence Fluctuations in Solids** Santa Barbara, Cal. (M. B. Maple, Inst. for Theoretical Phys., U. California, Santa Barbara, Santa Barbara, Cal. 93106)

JANUARY 1981

- 3-8 → **Nat Meeting of the AAAS** Toronto, Canada (Joan Wrather, AAAS, 1776 Massachusetts Ave., NW, Washington, D.C. 20036)
- 5-7 **18th Annual Solid State Phys Conf** York, UK 7/80

- 5-9 **4th Nordic Meeting on Intermediate Energy Phys** Geilo, Norway 9/80
- 8-10 **5th NYU Wrkshp on Penetration Phenomena: Exotic Particles** New York, N.Y. 9/80
- 11-14 **AAS Gen Meeting** Albuquerque, N.M. 7/80
- 21-25 **Conf on Liquid Crystals of One- and Two-Dimensional Order and their Applications** Garmisch-Partenkirchen, Fed. Rep. Germany 9/79
- 26-29 **APS/AAPT Annual Joint Meeting** New York, N.Y. 11/79
- 27-29 **8th Annual Conf on the Phys of Compound Semiconductor Interfaces** Williamsburg, Va. 9/80

FEBRUARY 1981

- 5-15 → **1st Int Winter Symp on Computed Tomography and Ultrasonography** Chamonix, France (Conf. Sec., Chamonix Meeting, Annual Int. Body Imaging Conf., West Park Hospital, Dept. of Radiology, 22141 Roscoe Blvd., Canoga Park, Cal. 91304)
- 17-26 → **20th Int University Week for Nu-**

clear Phys: Recent Developments in Mathematical Phys Schlading, Austria (20th Internationale Universitätswochen Institut für Theoretische Physik, Universität Graz, Universitätsplatz 5, A-8010 Graz, Austria) [1/19/81]

- 22-25 **Meeting of the Adhesion Soc** Savannah, Georgia 9/80
- 22-26 **52nd S of R Annual Meeting** Williamsburg, Virginia 7/80
- 25-2 **Conf on Nonlinear Problems in Sci** Houston, Texas 9/80

MARCH 1981

- 2-4 **Texas Conf on Theoretical Approaches to Chem Dynamics** Austin, Texas 9/80
- 8-14 **Conf on High Energy (Multiparticle) Hadron Phys** Erice, Italy 7/80
- 11-13 **Particle Accelerator Conf** Washington, D.C. 11/79
- 11-14 → **Conf on Resonance Light Scattering in Solid State and Biomolecular Systems** [Arizona State U.] Castle Hot Springs, Arizona (C. T. Walker, Phys. Dept., Arizona State U., Tempe, Arizona 85281) [11/1/80]
- 12-14 → **Topical Conf on Tetrahedrally Bonded Amorphous Semi-conductors** [APS; SERI] Carefree, Arizona (R. A. Street, Xerox Palo Alto Res. Ctr., 3333 Coyote Hill Rd., Palo Alto, Cal. 94304) [11/15/80]
- 16-19 → **Meeting on Long-Time Prediction in Nonlinear Conservative Systems** [ONR; NSF] Austin, Texas (Joyce Pole, U. Texas at Austin, Box Z, University Station, Austin, Texas 78712)
- 16-20 **APS Gen Meeting** Phoenix, Ariz. 11/79
- 22-27 **ACA Meeting** College Station, Texas 7/80
- 23-24 → **Wrkshp on Molecular Electronic Devices** [NRL; ONR] Washington, D.C. (Forrest L. Carter, Chem. Div, Cole 6170, NRL, 4555 Overlook Ave., SW, Washington, D.C. 20375)
- 23-26 → **4th Int Conf on Stable Isotopes** Jülich, Fed. Rep. Germany (H. Förstel, Kernforschungsanlage, Radioastronomie (im ICH) Postf. 1913, D-5170 Jülich, Fed. Rep. Germany) [10/15/80]
- 23-27 → **Meeting on Nuclear Phys** [DPG] Hamburg, Fed. Rep. Germany (A. Richter, Inst. für Kernphysik, Schlossgartenstr. 9, 6100 Darmstadt, Fed. Rep. Germany)
- 25-27 **Int Conf on Excited State and Multiresonant Nonlinear Processes in Solids** Aussois, France 9/80
- 30-3 **7th Int Conf on Magnet Tech** Karlsruhe, Fed. Rep. Germany 7/80

APRIL 1981

- 6-8 **Conf on Particle Phys and Nuclear Structure** Oxford, UK 7/80
- 6-10 **6th Int Symp on Noise in Phys Systems** Gaithersburg, Md. 7/80

Short Courses and Schools

Pattern Recognition Techniques

6-9 January 1981 [Arizona State U.] Castle Hot Springs, Arizona (Michael Parsons, Chem. Dept., Arizona State U., Tempe, Ariz. 85281)

Large Order Perturbation Theory: Quantum Biology; Atomic, Molecular and Solid State Theory

2-14 March 1981 [Sanibel Symp.] Palm Coast, Florida (J. R. Sabin, Phys. Dept., U. Florida, Gainesville, Fla. 32601)

Ion Implantation Metallurgy

14-15 March 1981 [APS] Phoenix, Arizona (James K. Hirvonen, Code 6671, NRL, Washington, D.C. 20375)

Structural, Thermodynamic, and Mechanical Properties of Polymers

14-15 March 1981 [APS] Phoenix, Arizona (B. Wunderlich, Chem. Dept., Rensselaer Polytech. Inst. Troy, New York 12181)

Advances in the Biological Effects and Dosimetry of Low-Energy Electromagnetic Fields

28 March-8 April 1981 [NATO] Erice, Italy (Sol M. Michaelson, Co-dir., U. Rochester Medical Ctr., 601 Elmwood Ave., Rochester, N.Y. 14642)

Dispersion of Pigments and Resins in Fluid Media

18-22 May 1981 [Kent St. U.] Kent, Ohio (C. J. Knauss, Rheology and Coatings Lab., Chem. Dept., Kent St. U., Kent, Ohio 44242)

Techniques for Surface Analysis

1-2 June 1981 Dayton, Ohio (J. T. Grant, U. Dayton Res. Inst., Dayton, Ohio 45469)

X-Ray Spectrometry

1-12 June 1981 [SUNY at Albany] Albany, New York (Henry Chessin, SUNY at Albany, Phys. Dept., 1400 Washington Ave., Albany, N.Y. 12222)

Adhesion Principles and Practice for Coatings and Polymer Scientists

8-12 June 1981 [Kent St. U.] Kent, Ohio (C. J. Knauss, Rheology and Coatings Lab., Chem. Dept., Kent St. U., Kent, Ohio 44242)

X-Ray Powder Diffraction

15-26 June 1981 [SUNY at Albany] Albany, New York (Henry Chessin, SUNY at Albany, Phys. Dept., 1400 Washington Ave., Albany, N.Y. 12222)

Collective Excitations in Solids

15-19 June 1981 [NATO] Erice, Italy (B. Di Bartolo, Phys. Dept., Boston College, Chestnut Hill, Mass. 02167)

Grand Unified Theories and Related Topics

29 June-3 July 1981 Kyoto, Japan (Z. Maki, Res. Inst. for Fundamental Phys., Kyoto U., Kyoto 606, Japan)

Chaotic Behavior of Deterministic Systems

29 June-26 July 1981 [NATO] Les Houches, France (G. Iooss, Math. Dept., U. Nice, F-06000 Nice, France)

Gauge Theories in High Energy Physics

3 August-11 September 1981 [NATO] Les Houches, France (Ecole d'Été de Physique Théorique, Côte des Chavants, 743190 Les Houches, France)

drift chamber digitizing

THE



WAY

To meet the demanding requirements of modern and future high energy physics experiments, LeCroy engineers have developed monolithic technology as the solution. They have created two LSI custom monolithic devices for drift chamber encoding. The MTD110 is a complete, self-calibrating TDC on a chip; the MVL100 is a monolithic wire chamber discriminator. By exploiting monolithic technology to its fullest, Lecroy engineers have achieved significant advantages over conventional discrete and hybrid designs:

SIMPLE = RELIABLE—All the complexity of the TDC—its calibration, readout, and control—are accommodated within one monolithic device. As a result, the circuit board is simple with a minimum of parts. One chip per channel means high reliability.

MONOLITHIC = ECONOMICAL—Monolithics minimize both production and maintenance costs—to satisfy today's need for low, low cost per channel.

MONOLITHIC = HIGH DENSITY—Monolithic design means low parts count and low power dissipation—making the highest CAMAC packing density possible.

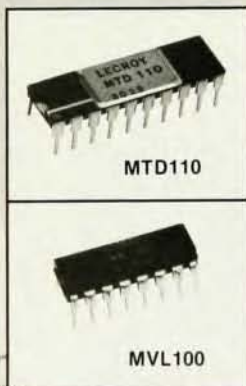
SELF-CALIBRATING—Only monolithic design makes it practical to include DAC's, registers, and all the associated electronics necessary to calibrate and test a TDC in THE SAME CHIP as the TDC. The OUTSTANDING FEATURE of the MTD110 is its self-calibration mode—AUTOTRIM.® On CAMAC command, AUTOTRIM can correct pedestal variations (including both TDC variations and channel-to-channel delay variations in cabling and preamplifiers) AND compensate for gain variations. All channels in the system read the same at zero and full scale.

LeCROY 4290 DRIFT CHAMBER READOUT SYSTEM OFFERS:

- Self-calibration (AUTOTRIM®)
- Resolution as low as 500 psec/count
- FAST BUS adaptability
- Individual outputs for fast trigger decisions
- 736 wires per CAMAC crate
- Common start or common stop operation

LeCROY DISCRIMINATOR FRONT ENDS OFFER:

- Low minimum threshold
- Low interchannel crosstalk
- Common mode noise rejection
- Differential inputs
- Differential ECL output
- Optional ON or OFF chamber mounting



For further details on how monolithics and LeCroy engineering can solve your wire chamber encoding and readout problems, call or write your local LeCroy office.

LeCroy

Innovators in Instrumentation

Headquarters: 700 S. Main St., Spring Valley, N.Y. 10977. Offices: Chicago, (312) 626-6726; New England, (603) 483-8755; New York, (914) 425-2000; Palo Alto, (415) 856-1806; Geneva, Switzerland, (022) 98 97 97; Heidelberg, W. Germany, (06221) 28192; Hamburg, W. Germany, (040) 54 2713; Orsay, France 907.38.97; Botley, Oxford, England. Representatives throughout the world.

PULSED LIGHT SYSTEMS FOR SYN FUEL RESEARCH

- Up to 10,000,000 watts of peak power
- From deep UV to infrared
- 10 nanoseconds to 20 milliseconds

Are you doing research on the following?

- ☐ Syn Fuel
- ☐ Solar Cells
- ☐ Flash Annealing of Semiconductors
- ☐ Deep UV sub-micron Lithography
- ☐ Rapid Exposure of Printed Circuits

We welcome inquiries for custom flashtubes and custom pulsed light systems.

XENON corporation

66 Industrial Way, Wilmington, MA 01887
(617) 658-8940 TWX: 710-347-0630



XE-001

Circle No. 55 on Reader Service Card

CO-NETIC Magnetic Shields



for Photomultiplier Tubes



MAGNETIC SHIELD DIVISION

PERFECTION MICA CO.
740 North Thomas Drive
Bensenville, Ill. 60106, USA
Phone 312 / 766-7800
TWX 910-256-4815

Send for NEW PM-4 catalog of magnetic shields for over 650 PMT's. Includes recommended shield for each tube, metric & English dimensions of shields and application information.

Circle No. 56 on Reader Service Card

- 6-10 2nd Oxford Conf on Microscopy of Semiconducting Materials Oxford, UK 9/80
- 6-10 Int Conf on Metallurgical Coatings San Francisco, Cal. 9/80
- 6-10 Eur Conf on Atomic Phys Heidelberg, Fed. Rep. Germany 7/80
- 7-10 Los Alamos Conf on Optics '81 Santa Fe, New Mexico 7/80
- 7-10 Europhys Conf on Macromolecular Phys Leeds, UK 7/80
- 7-10 4th Int Seminar on Magnetism Hetzdorf, German Dem. Rep. 9/80
- 8-10 → Conf on Mass Spectroscopic Analysis of Isotopes and Elements Amsterdam, The Netherlands (E. Hebeda, Lab. voor Isotopen-Geologie, De Boelelaan 1085, NL-1081 HV Amsterdam, The Netherlands)
- 8-11 Colloquium on Phys of Photon-Photon Interactions Paris, France 9/80
- 13-15 Conf on High Resolution Spectroscopy Bristol, UK 9/80
- 13-15 Miami Int Symp on Metal-Hydrogen Systems Miami Beach, Florida 9/80
- 13-15 3rd Eur Solar Meeting: Solar Activity Oxford, UK 9/80
- 14-16 IAU Colloquium: Uranus and the Outer Solar System Bath, UK 9/80
- 20-23 APS Gen Meeting Baltimore, Md. 11/79
- 27-29 Conf on Insulating Films on Semiconductors Erlangen, Fed. Rep. Germany 7/80
- 27-29 3rd Int Conf on Integrated Optics and Fiber Communication San Francisco, Cal. 9/80

MAY 1981

- 4-6 → Topical Conf on Gradient Index Optical Imaging Systems [OSA] Honolulu, Hawaii (Joan Connor, Meetings Manager, OSA, 1816 Jefferson Pl., NW, Washington, D.C. 20036) [1/16/81]
- 6-8 Three Lands Conf on Crystal Growth Noordwijkerhout, The Netherlands 9/80
- 6-8 4th Int Conf on Electrostatics Hague, The Netherlands 9/80
- 10-15 Symp on the Adhesion Aspects of Polymeric Coating Minneapolis, Minn. 9/80
- 10-15 → Symp on Laser Spectroscopy Minneapolis, Minnesota (Electrochem. Soc., PO Box 2071, Princeton, N.J. 08540)
- 11-15 → 15th IEEE Photovoltaic Specialists Conf Orlando, Florida (Charles J. Bishop, Solar Energy Res. Inst., 1617 Cole Blvd., Golden, Colo. 80401) [10/1/80]
- 11-15 INTERMAG Grenoble, France 7/80
- 18-20 Int Conf on Plasma Sci Santa Fe, New Mexico 7/80
- 18-21 → 5th Princeton Conf on Space Manufacturing [Princeton U. Conf.; Amer. Inst. of Aeronautics and Astronautics; Space Studies Inst.] Princeton, New Jersey (Barbara Evans, Space Studies Inst., PO Box

S.U.S.S.P. 1960-1979

LASER-PLASMA INTERACTIONS

Proceedings of the twentieth Scottish Universities Summer School in Physics, held at St. Andrews, August 1979.

Editors: R. A. CAIRNS, J. J. SANDERSON

Contents:

Laser-Plasma Absorption Processes/ Radiation Transport and the Pondermotive Force/ The Physics of the Coronal Region/ The Physics of the Superdense Region/ Diagnostics for Electromagnetic Radiation Emission/ Diagnostics for Particle Emission/ Computer Modelling of Laser-Plasma Experiments/ Computer Simulation of Basic Plasma Phenomena/ High Power Pulsed Lasers/ Intense Particle Beams.

800 pp (approx). Hardcover. £ 18

ISBN 0 905945 03 4

Previous Publications still available

1976: **Fundamentals of Quark models** (£ 12)

1977: **Nuclear Structure Physics** (£ 15)

1978: **Metal-Nonmetal Transitions in Disordered Systems** (£ 15)

The above volumes may be obtained directly from:

**SUSSP Publications,
Physics Department,
University of Edinburgh,
EDINBURGH EH9 3JZ,
Great Britain.**

Private subscribers are requested to enclose payment with their order. There is no charge for postage. Please make cheques payable to SUSSP Publications.

(The above prices refer to direct purchases only: copies obtained through book shops will cost from £ 18 to £ 24).

Circle No. 57 on Reader Service Card

THE HALL EFFECT AND ITS APPLICATIONS

edited by **C. L. Chien** and **C. R. Westgate**
The Johns Hopkins University

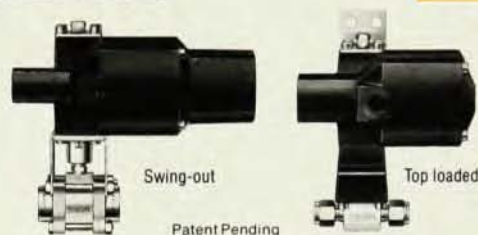
This volume commemorates the 100th anniversary of the discovery of the Hall effect, and reviews its place in basic science and technology. Detailed coverage of the Hall effect in amorphous and crystalline metals and alloys, magnetic materials, liquid metals and semiconductors is provided. Applications of the Hall effect in space technology are enriched by discussions of the Hall effect's utility in sensors and switches. The volume also features portions of Edwin Hall's hitherto unpublished account of the discovery of the Hall effect. 560 pp., 1980, \$59.50

THE LANGUAGE OF SCIENCE
Plenum
PUBLISHING CORPORATION

227 West 17th Street, New York, N.Y. 10011

Circle No. 58 on Reader Service Card

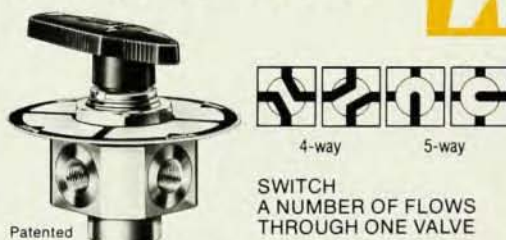
AIR-OPERATED BALL VALVES



REMOTE FULL FLOW SWITCHING, CONTROL OR ON-OFF SERVICE • Compact air operators in double acting and spring return models for both top-loaded and swing-out WHITEY ball valves • Valve sizes 1/8" to 1" with **SWAGELOK** or pipe end connections • Operate from standard shop air or instrument air supplies • Bracket mounting in any position, keeps weight off tubing or piping • 100% factory tested • Stocked locally for immediate delivery.

WI-33

MULTI-PORT BALL VALVES



4 and 5-way models • On stream adjustability of top loaded TFE packing • Directional name plates and spring loaded detent to position directional handle • Color coded handles • Pressures to 2500 psi • Temperatures +50°F to +150°F • Panel mounting • Choice of brass or 316SS with 1/8" female pipe ends • 1/8" female **SWAGELOK** connections available for chromatography • 100% factory tested • Stocked locally for immediate delivery.

WI-27

BALL VALVES



FAST, POSITIVE SHUT OFF OR 3-PORT SWITCHING SERVICE • Compact, one-piece construction in brass or 316SS bar stock • Large flow capacity in small package • On-stream adjustability of top-loaded TFE packing • Pressures to 3000 psi • Temperatures +50°F to +150°F • No internal cavities to trap fluids • **SWAGELOK** or female pipe end connections • Color coded handles • 100% factory tested • Stocked locally for immediate delivery.

WI-25

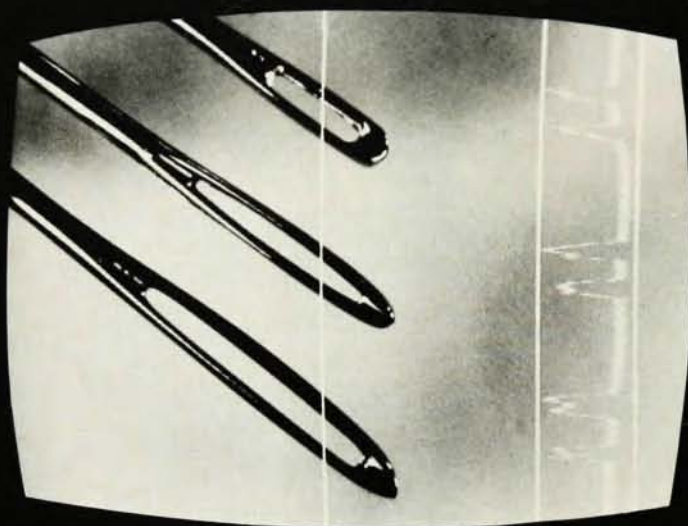
Swagelok® TM Crawford Fitting Company © 1979 Markad Service Co. all rights reserved

WHITEY

WHITEY CO., 318 Bishop Rd., Highland Hts., Ohio 44143

Circle No. 59 on Reader Service Card

HIGH RESOLUTION VIDEO DIGITIZING



Colorado Video's Model 270A-2 is a state-of-the-art TV to computer input instrument designed for use with high resolution TV cameras. Features of the 270A-2 include:

- Computer controllable sampling patterns allowing fast feature identification.
- 1024 x 1024 pixel resolution (optional 512 x 2048) with 8-bit grayscale.

\$4500.

For specifications and applications material, call or write COLORADO VIDEO, 303/444-3972, Box 928, Boulder, CO 80306 U.S.A.

 colorado video

15 Years of Innovative Video Instruments for Data Acquisition, Processing, Transmission, and Display.

Circle No. 60 on Reader Service Card

Announcing the Los Alamos Scientific Laboratory Series on Dynamic Material Properties Charles L. Mader, General Editor

LASL Phermex Data, Volume 1
Edited by Charles L. Mader and Timothy
R. Neal, and Richard D. Dick
\$47.50, 749 pages, 637 halftones

LASL Phermex Data, Volume 2
Edited by Charles L. Mader
\$39.50, 630 pages, 592 halftones

LASL Phermex Data, Volume 3
Edited by Charles L. Mader
\$30.95, 544 pages, 254 halftones

At bookstores

LASL Shock Hugoniot Data
Edited by Stanley P. Marsh
\$36.50, 677 pages, graphs throughout

LASL Explosive Property Data
Edited by Terry R. Gibbs and
Alphonse Popolato
\$40.00, 600 pages

—AND—

New in paperback
Nuclear Tracks in Solids
Principles and Applications
Robert L. Fleischer, P. Buford Price,
and Robert Walker
\$14.95, 627 pages, 131 drawings, 74 halftones

University of California Press
Berkeley 94720

Circle No. 61 on Reader Service Card

SPECTRORADIOMETERS

LOW-COST...PORTABLE

Spectral Measurements in the
Ultraviolet, Visible & Infrared



- **Direct Readout:** wavelength/irradiance
- **Programmable** for readout in any optical unit
- **Sensitivities** for diverse applications
- **Chart Recorder Outputs**

Call Collect for Application Assistance



international light inc
Specialists in Light Measurement

DEXTER INDUSTRIAL GREEN, NEWBURYPORT, MASS. 01950
■ TEL 617 465-5923 ■ TELEX 94-7135

Circle No. 62 on Reader Service Card

Come to the SOURCE... STABLE ISOTOPES

Isotec, Inc., is more than a supplier of stable isotopes.

- **HELIUM-3** is processed to the highest enrichment and purity.
- **NOBLE GAS ISOTOPES** are separated and enriched in our own production facility.
- **ISOTOPIC GAS MIXES** are prepared to the isotopic ratio and in quantities of your choice.
- **LIFE SCIENCE ISOTOPES** such as Carbon-13, Oxygen-17, 18, and Nitrogen-15 are available.

Consider —

70-99% Krypton-78, 82, 86
99.95+% Neon-20, 22
99.9+% Helium-3
20-99% Xenon-124, 129, 136
99.5% Argon-36, 40

For your Stable Isotope Catalog contact us at

7542 McEwen Road
Centerville, OH 45459
(513) 435-4669
telex 288 278

Isotec inc

Circle No. 63 on Reader Service Card

Atomic Energy-Level & Grotrian Diagrams

by S. BASHKIN and J. O. STONER, Dept. of Physics, University of Arizona, Tucson, U.S.A.

This series summarizes, in pictorial representations, all the recent information on the electronic structure of monatomic species, as well as the optical transitions which have been seen, and complete quantum descriptions of the levels are given. This is the *first* work since that by Grotrian himself to provide such a detailed compilation of the present information. The organization of the volumes makes it possible to tell at a glance what is known and what is still unknown about the electronic structures of the elements included. The completeness of the work makes it invaluable to spectroscopists, astronomers, chemists, and atomic theorists.

Vol. III Vanadium I - Chromium XXIV

1980 about 600 pages
Price: US \$87.75/Dfl. 180.00
ISBN 0-444-86006-1

Vol. II Sulphur I - Titanium XXII

1978 xviii + 650 pages
Price: US \$87.75/Dfl. 180.00
ISBN 0-444-85149-6

Vol. I (Addenda) Hydrogen I - Phosphorus XV

1978 viii + 176 pages
Price: US \$24.50/Dfl. 50.00
ISBN 0-444-85236-0

Vol. I Hydrogen I - Phosphorus XV

1976 xx + 616 pages
Price: US \$87.75/Dfl. 180.00
ISBN 0-7204-0322-7

A Comment from the Press:

"Volume 2 will, together with vol. 1 and the addendum to vol. 1, be of great use to people working with optical spectroscopy... the book will find its use in all laboratories where optical spectroscopy (pure as well as applied) is in use, and a copy of it simply must be in any library of physics, astronomy or chemistry".

Radiation Effects

Subscribers to the series are entitled to a 15% discount on the list price per volume.

North-Holland Publishing Company

P.O.Box 211 - 1000 AE Amsterdam - The Netherlands

For customers in the U.S.A. and Canada

Elsevier North-Holland Inc.

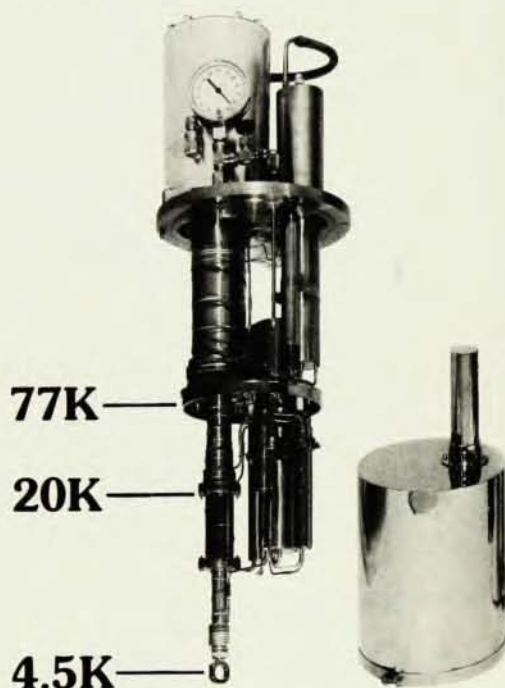
52 Vanderbilt Avenue - New York - NY 10017

Circle No. 64 on Reader Service Card

PHYSICS TODAY / NOVEMBER 1980

Cancel your liquid helium order . . .

Get a HELIPLEX™ refrigerator.



Forget about the cost of liquid helium and the bother of handling it. With the HELIPLEX Model CS-308 closed-cycle refrigerator you get stable temperatures down to 3.7K.

This refrigerator is highly reliable — its major components have been proven in the field for 5 years. It operates virtually unattended and optionally gives you automatic temperature control and readout. Normal maintenance interval is 9,000 hours, and it is field maintainable.

The HELIPLEX 308 refrigerator has a conveniently small cold end (the refrigerator is only 35" high). This makes it useful for a variety of research and industrial applications with a selection of temperature controllers, interface designs and radiation shields available.

For more information, write or call Advanced Products Department, Air Products and Chemicals, Inc., Box 2802, Allentown, PA 18105. (215) 398-8419.



Circle No. 65 on Reader Service Card

82, Princeton N.J. 08540
[1/16/81]

- 18-22 **ASA Gen Meeting** Ottawa, Canada 11/79
- 25-29 → **Meeting on the Motion of Artificial Satellites** [NSF; French Nat. Ctr. of Sci. Res.; Brazilian Nat. Res. Ctr.] Sao Paulo, Brazil (Joyce Pole, U. Texas at Austin, Box Z, University Station, Austin, Texas 78712)
- 25-29 **Europhys Study Conf on Internal Reorientation in Solids** Poznan, Poland 7/80
- 27-28 **Princeton U Plasma Phys Lab Info Meeting** Princeton, New Jersey 7/80

JUNE 1981

- 1-4 **Symp on Mesons and Light Nuclei** Liblice Castle, Czechoslovakia 9/80
- 1-5 **8th Int Symp on Molecular Beams** Cannes, France 7/80
- 3-5 → **3rd Symp on Applied Surface Analysis** Dayton, Ohio (J. T. Grant, U. Dayton Res. Inst., Dayton, Ohio 45469) [4/17/81]
- 7-12 **ANS Annual Meeting** Miami, Florida 7/80
- 8-11 **2nd Int Conf on Solid Films and Surfaces** College Park, Maryland 7/80
- 8-12 → **Int Conf on Fourier Transform Infrared Spectroscopy** Columbia, South Carolina (J. Lephardt, Phillip Morris R&D, PO Box 26583, Richmond, Virginia 23261)
- 8-12 **2nd Int Conf on Precision Measurement and Fundamental Constants** Gaithersburg, Md. 7/80
- 10-12 **5th Symp on X- and Gamma-Ray Sources and Applications** Ann Arbor, Michigan 7/80
- 10-12 **Conf on Lasers and Electro-Optics** Washington, D.C. 9/80
- 15-17 **Int Microwave Symp** Los Angeles, Cal. 11/79
- 15-18 **Annual Congress of the Canadian Assoc of Phys** Halifax, Canada 7/80
- 15-19 **8th Symp of Thermophys Properties** Gaithersburg, Md. 7/80
- 15-19 → **17th Conf on Thermal Conductivity** [NBS] Gaithersburg, Maryland (J. G. Hust, Chmn., Thermophys. Properties Div., NBS, Boulder, Colorado 80303) [12/1/80]
- 15-19 → **8th Int Thermal Expansion Symp** [NBS] Gaithersburg, Maryland (T. A. Hahn, Chmn., Ctr. for Material Sci., NBS, Washington, D.C. 20234)
- 16-19 **7th Symp Int on Detonation** Annapolis, Md. 9/80
- 17-19 → **2nd Int Conf on the Numerical Analysis of Semiconductor Devices and Integrated Circuits** [IEEE; Inst. for Elec. Engrng.] Dublin, Ireland (NASECODE II, 39 Trinity College, Dublin 2, Ireland)
- 17-19 **AAPT Gen Meeting** Stevens Point, Wisc. 9/80
- 21-26 → **12th Int Symp on Multiparticle Dynamics** Notre Dame, Indiana (W. D. Shephard, Phys. Dept., U. Notre Dame, Notre Dame, Indiana 46556)

THE RESEARCH S-GUN TURBOSYSTEM



A complete sputtering system designed for the research scientist.

Available in either manual or electro-manual formats, the Research S-Gun Turbosystem represents the ultimate self-contained research sputtering station.



Sputtered Films, Inc., 9 Ashley Ave.
Santa Barbara, CA. 93103 (805) 963-1751

Circle No. 66 on Reader Service Card

TWO • DE • PEP (too' de-pep) *n.* (Two Dimensional, Elliptic, Parabolic and Eigenvalue Problems) **1:** IMSL's cost-effective finite element program. **2:** IMSL's easy-to-use PDE solver.

TWODEPEP is a new, finite element program from IMSL, Inc. It solves a wide range of partial differential equations in general, two-dimensional regions with greater ease and cost-effectiveness than any similar program on the market. That's because IMSL's ingenious and efficient design for TWODEPEP incorporates a preprocessor, automatic mesh refinement and grading, plus out-of-core data handling.

You'll use TWODEPEP on elasticity, diffusion, heat-conduction, potential and fluid mechanics problems. And you'll learn how in less than a day, with minimal prior programming experience. We'll maintain the software for you and provide free consultation.

Call or write IMSL and let us define TWODEPEP or our entire, comprehensive library of FORTRAN sub-routines. IMSL is International Mathematical & Statistical Libraries, Inc., Sixth Floor—NBC Building, 7500 Bellaire Boulevard, Houston, Texas 77036, U.S.A. Telephone (713) 772-1927. Telex 79-1923 IMSL INC HOU.

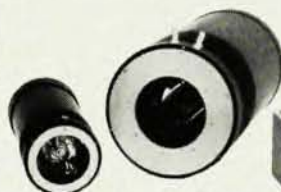
IMSL



Circle No. 67 on Reader Service Card

LIGHT!

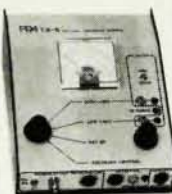
We know a lot about it.
Maybe you should know
more about us.



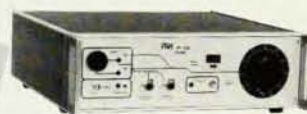
ARC LAMPS



POWER SUPPLIES



OPTICAL
FEEDBACK



PULSE UNITS



MONOCHROMATORS
& DRIVES



BUILDING
BLOCKS

We have a broad line of field-proven instruments—and the technically competent people who can give you answers to your tough technical questions.

Send for our catalogue and buy with confidence. We're on your wavelength.

PRA

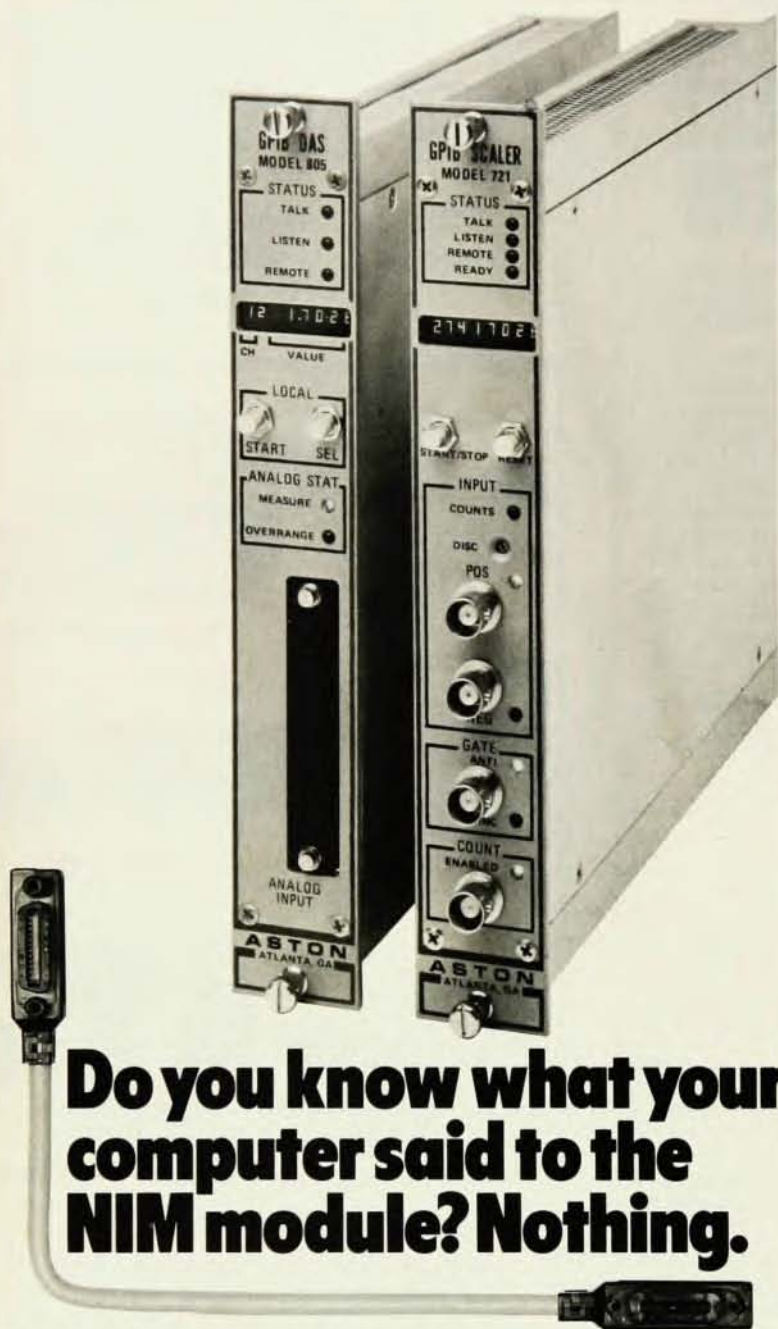
UNITED STATES:

Photochemical Research Assoc.
100 Tulsa Road,
Oak Ridge, Tennessee, 37830
(615) 483-3433

INTERNATIONAL:

Photochemical Research Assoc. Inc.
45 Meg Drive,
London, Ontario, CANADA N6E 2V2
(519) 686-2950 Telex 064-7597

Circle No. 68 on Reader Service Card



Do you know what your computer said to the NIM module? Nothing.

And that is costing you time and money.

We can help change all that because we have the only system available that allows the computer to control the NIM.

In fact, our large range of NIM modules with the General Purpose Interface Bus (GPIB, also known as IEEE-488 and HP-IB) is compatible with almost any computer.

Your computer can actually control the module and, thus, automate your experiments. Our GPIB NIM's minimize error in control and data transfer and allow you to use your time more efficiently.

Our modules function with manual control and read out, even if your computer is down. The Scaler shows eight decades, and the Data Acquisition System (DAS) shows the voltage on any one of its 16 analog channels.

We've been manufacturing and delivering these NIM's for more than two years.

So, if you want your computer to talk, talk to us.

We'll show you how to save time and money. Fast.

The Aston Company
P.O. Box 49123

ASTON
ATLANTA, GA
The Intelligent Alternative

Atlanta, Georgia 30359
Phone: (404) 939-9433

- 22-25 → **Topical Conf on Photoacoustic Spectroscopy** [OSA] Berkeley, Cal. (Barbara Hicks, Meetings Manager, OSA, 1816 Jefferson Pl., NW, Washington, D.C. 20036) [3/6/81]
- 22-26 → **Int Symp on Health Impacts of Different Sources of Energy** [WHO; UN Environmental Program; IAEA] Nashville, Tennessee (John H. Kane Conf., Manager, Int. Affairs, MS A1-5216, Dept. of Energy, Washington, D.C. 20545)
- 22-26 → **4th American Conf on Theoretical Chem** Boulder, Colorado (John C. Light, Chmn., ACTC, Chicago 5640 S. Ellis Ave., Chicago, Ill. 60637)
- 24-26 → **Modification of the Surface Properties of Metals by Ion Implantation** [IOP] Manchester, UK (R.P.M. Procter, UMIST, Manchester M60 1QD, UK) [3/1/81]
- 28-1 **AAS Gen Meeting** Calgary, Canada 7/80
- 29-1 **Phys Electronics Conf** Bozeman, Montana 9/80
- 30-2 **Int Conf on Ion and Plasma Assisted Techniques** Amsterdam, The Netherlands 9/80
- 30-2 **7th Thermodynamics and Fluid Mechanics Conf** Oxford, UK 9/80

JULY 1981

- 2-8 → **9th Int Conf on Amorphous and Liquid Semiconductors** [IUPAP; French Phys. Soc.] Grenoble, France (Secretariat, Groupe des Transitions de Phases, CNRS, Bp 166, 38042 Grenoble, France)
- 5-10 **4th Int Conf on Surface and Colloid Sci** Jerusalem, Israel 9/80
- 6-9 **Int Conf on Internal Friction and Ultrasonic Attenuation in Solids** Lausanne, Switzerland 7/80
- 6-10 → **9th Int Conf on Atomic Collisions in Solids** Lydon, France (J. Remillieux, Institut de Physique Nucléaire, Université Cl., Bernard Lyon-1 43, Bd. du 11 Novembre 1918, 69622 Villeurbanne Cedex, France) [3/31/80]
- 6-10 **9th Int Conf on High Energy Phys and Nuclear Structure** Versailles, France 7/80
- 7-10 **3rd Int Conf on Hot Carriers in Semiconductors** Montpellier, France 9/80
- 9-15 **1981 EPS Conf on High Energy Phys** Lisbon, Portugal 9/80
- 12-16 **5th Int NMR Meeting** Exeter, UK 9/80
- 13-17 → **16th Annual Conf of the Microbeam Analysis Soc** Vail, Colorado (Roy Geiss, IBM Res. Div., Dept. K41/281, 5600 Cottle Rd., San Jose, Cal. 95193)
- 13-17 **Int Conf on the Applications of Mössbauer Effect** Srinagar, India 9/80
- 14-18 **15th Int Conf on Phenomena in Ionized Gases** Minsk, USSR 7/80
- 15-17 → **2nd Nat Conf on Synchrotron Radiation Instrumentation** Ithaca, N.Y. (B. W. Batterman, Dept. of Applied and Engrng. Phys., Cornell U., Ithaca, N.Y. 14853)

Circle No. 69 on Reader Service Card

Get the Ultimate in Electronic Manometer Simplicity, Economy and Performance.



The MKS Baratron® Type 222A combines sensor and electronics into a single package. The corrosion resistant design provides direct, absolute pressure measurement independent of gas composition or dielectric. The 222A is also available for differential or gage measurements.

The Model 222A is accurate to 1.5% of reading, and has resolution of 1 part in 1000. It's a direct replacement for Alphatron, Pirani, McLeod, thermocouple, dial and strain gages as well as mercury, oil and water manometers.

Call us today, we're at 617-272-9255. Let us tell you more about the ultimate in electronic manometer simplicity, economy and performance.

Input: ± 15 vdc
Output: 0-10 vdc.

Pressure Ranges:

0-10 mmHg
0-100 mmHg
0-1000 mmHg
0-10,000 mmHg
0-2 psi
0-2 psi
0-20 psi
0-200 psi

Other ranges on request.



MKS

INSTRUMENTS, INC.

22 Third Avenue
Burlington, MA 01803
Tel: 617-272-9255
Telex: 94-9375

29th Annual

Physics show

at the Joint Meeting of the
American Physical Society
and the American
Association of Physics Teachers

Invited paper sessions include:

NUCLEAR PHYSICS—3
PARTICLES & FIELDS—4
COSMIC PHYSICS—2
ELECTRON & ATOMIC PHYSICS—3

New York Hilton

January 26–28, 1981

EXHIBITORS

(as of 10/1/80)

Addison-Wesley
Ardel Kinematic
Austin Science
Cambridge Univ. Press
Canberra Industries
Conference Book Service
Daedalon
EG&G PARC
EG&G Ortec
E & L Instruments
Elsevier North-Holland
Gordon & Breach
Harper & Row
Imported Publications
Ithaco
Janis Research
Kendall/Hunt
Klinger Educational Products
LeCroy Research Systems
Little, Brown
McGraw-Hill

Mech-Tronics Nuclear
Metrologic
Newport Research
Norland/Ino-Tech
W. W. Norton
Nuclear Data
The Nucleus
Oriel Corp. of America
PASCO Scientific
Pergamon Press
Prentice Hall
RCA Solid State
Sargent-Welch Scientific
Saunders/HRW
Tel-Atomic
Tennelec
Tracor Northern
Wadsworth
John Wiley & Sons
Worth

For exhibit space, contact:

Advertising Dept., **AMERICAN INSTITUTE OF PHYSICS**,
335 East 45th Street, New York, NY 10017
(212)661-9404

- 15–21 → **12th Int Conf on the Phys of Electronic and Atomic Collisions** Gatlinburg, Tennessee (Sheldon Datz, Oak Ridge Nat. Lab., PO Box X, Oak Ridge, Tenn. 37830) [3/13/81]
- 18–23 → **Sci Meeting of the Astro Soc of Amer** Seattle, Washington (Summer Meeting, ASP, 1290 24th Ave., San Francisco, Cal. 94122)
- 20–24 **1981 Int Conf on Luminescence** West Berlin, Fed. Rep. Germany 9/80
- 25–28 **7th Int Conf on Conduction and Breakdown in Dielectric Liquids** West Berlin, Fed. Rep. Germany 7/80

AUGUST 1981

- 3–6 → **NMR Symp** [Soc. for Applied Spectroscopy] Denver, Colorado (Francis P. Miknis, Laramie Energy Tech. Ctr., Laramie, Wyoming 82071) [3/25/81]
- 3–6 → **4th Int EPR Symp** [Soc. for Applied Spectroscopy; Int. Soc. for Magnetic Resonance] Denver, Colorado (Gareth R. Eaton, Chem. Dept., U. Denver, Colorado 80208) [3/25/81]
- 3–7 **Symp on Extragalactic Radio Sources** Albuquerque, New Mexico 7/80
- 8–13 **AAPM Annual Meeting** Boston, Massachusetts 7/80
- 10–14 → **Int Symp on the Phys of Solids under High Pressure** Bad Honnef, Fed. Rep. Germany (R. N. Shelton, Iowa State U., Physics Dept., Ames, Iowa 50011)
- 10–14 **1981 Cryogenic Engineering Conf/Int Cryogenic Materials Conf** San Diego, Cal. 7/80
- 10–14 **5th Int Symp on Plasma Chem** Edinburgh, UK 7/80
- 10–19 **20th Gen Assembly of Int Union of Radio Sci** Washington, D.C. 11/79
- 11–21 **6th Int Conf on Math Phys/Congress of the Assoc for Math Phys** West Berlin, Fed. Rep. Germany 7/80
- 12–13 **Symp on Neutron Diffraction** Argonne, Ill. 9/80
- 16–25 **12th Gen Assembly and Congress of the Int Union of Crystallography** Ottawa, Canada 7/80
- 17–21 **Annual Meeting of the Meteoritical Soc** Bern, Switzerland 9/80
- 17–22 → **5th Int Meeting on Ferroelectricity** [IUPAP; APS; Amer. Ceramic Soc.] University Park, Pennsylvania (R. E. Newnham, Materials Res. Lab., Pennsylvania State U., University Park, Pa. 16802) [2/15/80]
- 19–26 **16th Low Temperature Phys Conf** Los Angeles, Cal. 11/79
- 23–28 → **Int Symp on Physicochemical Aspects of Polymer Surfaces** New York, N.Y. (K. L. Mittal, Symp. Chmn., Bldg. 300-40E, IBM Corp., Hopewell Junction, N.Y. 12533)
- 23–28 **Int Conf on the Sci of Hard Materials** Moran, Wyoming 9/80
- 23–29 **7th Int Biophys Congress of the Int Union for Pure and Applied Biophys** Mexico City, Mexico 7/80

COLD REMEDIES

Cryogenic
Temperature
Sensors

**Cryo Resistor, Germanium
Resistance Thermometer, an
accepted standard for 14 years**

- 1.5 - 100K calibration
- 3mK accuracy to NBS
- 0.5mK reproducibility
- uniform sensitivity

**Ruggedized Germanium
Resistance Thermometer**

- same temperature characteristics
as the Cryo Resistor
- withstands shock and vibration
- industrial and aerospace
applications

**Carbon Composition
Resistance Thermometer**

- available with matched
characteristics
- inexpensive calibrations 1.5 - 300K
- stable, accurate, dependable

*We're cold but not impersonal.
Contact us for a remedy to your
particular needs. Write or call collect.*



2457 University Ave.
St. Paul, MN 55114 USA
(612) 645-0072

Circle No. 71 on Reader Service Card

LOW COST

Thermoelectric PMT Chamber

(Includes power supply)

Fully-Wired Tube Socket Assembly
(for all standard PMTs), Double-Pane,
Non-Fogging Window and
Front-Mounting Adapter. Model
TE-182TSRF Air-Heat exchanged
chambers provide reliable,
high-quality cooling with excellent
portability and flexibility. Design of
this economical system is based on the
widely used Products for Research
Model TE-104. Model TE-182TSRF
accepts 2" diameter or smaller end-on
PMTs. Model TE-212TSRF accepts side
window tubes.

Call (617) 774-3250
or write:

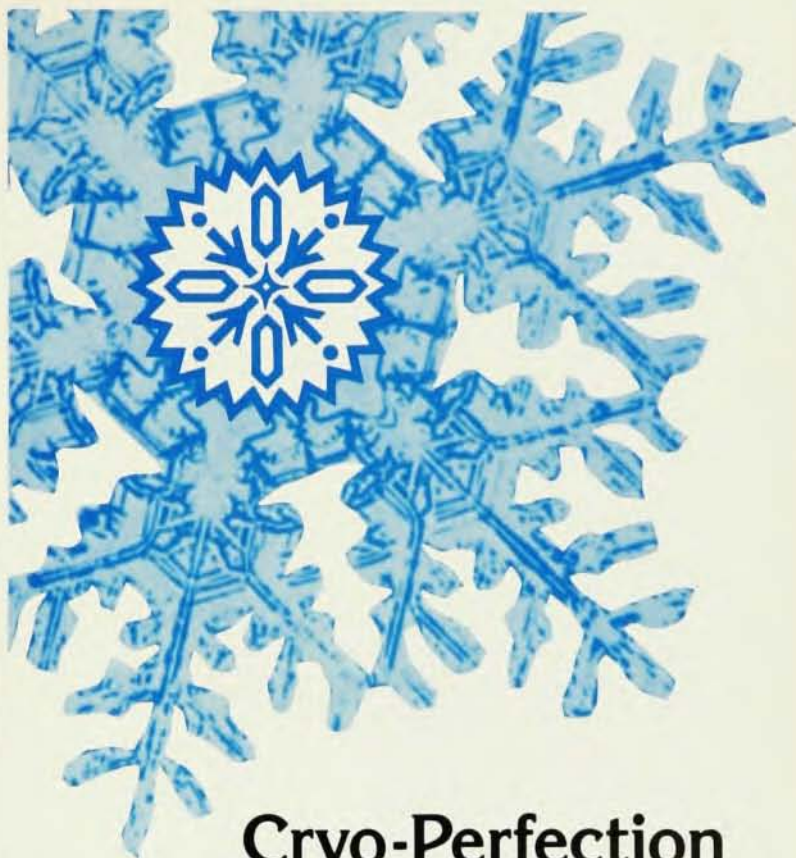


Ask about
our new
21-pin Ceramic
Socket for cooling
to Dry-Ice
temperatures.



Products for Research, Inc.
88 Hollen Street, Danvers, MA 01923
CABLE: PHOTOCOOL TELEX 94-0287

Circle No. 72 on Reader Service Card



Cryo-Perfection

At Lake Shore Cryotronics, Cryo-Perfection is an attitude . . . a corporate belief. It signifies our desire to produce the perfect cryogenic temperature for your application . . . stable, reliable, easy-to-control. It means you can concentrate on your experiment rather than the equipment. Only Lake Shore provides Cryo-Perfection in state-of-the-art sensors, instrumentation, closed-cycle and continuous flow low temperature systems . . . along with calibration and custom engineering . . . for virtually every cryogenic application.



**New DRC-80C
Controller**
Dual Sensor Input,
0.1K Resolution,
Interfaceable.



**CT-310 Cryotran
System**
Low Helium Consump-
tion, Cools to Below 2K.



**GR-200 Germanium
Sensors**
Application Note Aids
Selection of GRTs for
Low Temperatures.

These are only a few of the many Lake Shore products which can help you. So, if you're looking for Cryo-Perfection, come to Lake Shore . . . we know cryogenics COLD!

Cryogenic Thermometry • Instrumentation • Systems
Calibrations • Dewars

 **Lake Shore
Cryotronics, Inc.**

64 E. Walnut St., Westerville, OH 43081 • (614) 891-2243
In Europe: Cryophysics: Oxford • Versailles • Darmstadt • Geneva
In Japan: Niki Glass Co., Shiba Tokyo

Circle No. 73 on Reader Service Card

APS show

at the March General Meeting
of the American Physical Society

Phoenix Civic Plaza

March 17-19, 1981

The largest APS Meeting of the year; **2000** papers. Invited paper sessions on • Biological • Chemical • Condensed Matter • Electron and Atomic • High Polymer • Plasma Physics

Exhibitors

(as of 10/1/80)

Air Products
Airco
American Institute of Physics
American Magnetics
Amplifier Research
Bruker Instruments
Canberra Industries
Ceramaseal
Coherent
Crawford Fitting
Cryogenic Associates
Datametrics
D. S. Davidson
EG&G ORTEC
EG&G PARC
ENI
GCA McPherson
General Ionex
Gould/Biomation
Hamamatsu
High Vacuum Apparatus
Instruments SA/Inc.
Intermagetics General
Ithaco
Janis Research
Kearns Group
Keithley Instruments
Kratos/Schoeffel
Lake Shore Cryotronics
Lasermetrics
LeCroy Research Systems
Linear Research

Magnetic Corp. of America
Matec
MDC Mfg.
Mech-Tronics
MKS Instruments
Moletron
Newport Research
Nicolet
Norland/Ino-Tech
Nuclear Data
Oriel
Peabody Scientific
Perkin-Elmer/Physical
Electronics
S.H.E.
L. M. Simard
South Bay Technology
Spectra-Physics
Spex
Sputtered Films
Torr Vacuum
Tracor Northern
Vactronic
Vacuum General
Varian
Wilmad Glass

Publishers

Academic Press
Addison-Wesley
Elsevier North-Holland
Inspec
Oxford Univ. Press
Plenum Publishing
W. B. Saunders
Springer-Verlag
John Wiley & Sons

For exhibit space, contact:

Advertising Department, **AMERICAN INSTITUTE OF PHYSICS**,
335 East 45th Street, New York, N.Y. 10017
(212) 661-9404

- 24-28 → **4th Int Conf on Electronic Properties of Two-Dimensional Systems** New London, New Hampshire (Frank Stern, EP2DS Conf., IBM T. J. Watson Res. Ctr., Yorktown Heights, N.Y. 10598) [5/8/81]
- 24-28 **4th Int Conf on Rapidly Quenched Metals** Sendai, Japan 7/80
- 24-28 **IAU Colloquium: Evolutionary Status of Variable Stars** Budapest, Hungary 9/80
- 24-29 **1981 Symp on Lepton and Photon Interactions at High Energies** Bonn, Fed. Rep. Germany 9/80
- 31-3 **Int Conf on Phonon Phys** Bloomington, Indiana 7/80
- 31-4 **Amorphous Systems Investigated by Nuclear Methods** Balatonfüred, Hungary 9/80
- 31-4 **10th Int Colloquium on Group Theoretical Methods in Phys** Canterbury, UK 9/80
- 31-5 **Congress and 12th Assembly of the Int Commission for Optics** Graz, Austria 9/80

SEPTEMBER 1981

- 1-5 **22nd Int Colloquium on Spectroscopy/9th Int Conf on Atomic Spectroscopy** Tokyo, Japan 9/80
- 6-12 **GIREP Conf on Phys Education on Nuclear Phys and Nuclear Power** Balatonfüred, Hungary 9/80
- 7-10 **4th Int Conf on Small Gap Semiconductors** Linz, Austria 9/80
- 7-10 **9th Int Conf on Cyclotrons and their Applications** Caen, France 9/80
- 7-11 **5th EPS Gen Conf** Istanbul, Turkey 9/80
- 7-11 **4th Int Symp on Neutron-Capture Gamma-Ray Spectroscopy and Related Topics** Grenoble, France 7/80
- 7-12 **11th Int Conf on Solid State Nuclear Track Detectors** Bristol, UK 9/80
- 8-11 → **7th Eur Conf on Optical Communication** Copenhagen, Denmark (Sec. of 7th ECOC, M. Danielsen, Electromagnetics Inst., Technical U. of Denmark, DK-2800 Lyngby, Denmark) [3/31/80]
- 13-17 **COMPUMAG Conf on the Computation of Magnetic Fields** Chicago, Illinois 9/80
- 14-16 **Selectivity in Heterogeneous Catalysis** Nottingham, UK 9/80
- 14-17 **4th Int Conf on Small Gap Semiconductors** Linz, Austria 9/80
- 21-26 **12th Europhys Conf on Macromolecular Phys on Molecular Mobility in Polymer Systems** Leipzig, German Dem. Rep. 9/80

OCTOBER 1981

- 19-23 → **3rd Neutral Beam Wrkshp** Gatlinberg, Tennessee (M. Mennon, Oak Ridge Nat. Lab., PO Box X, Oak Ridge, Tennessee 37830) □