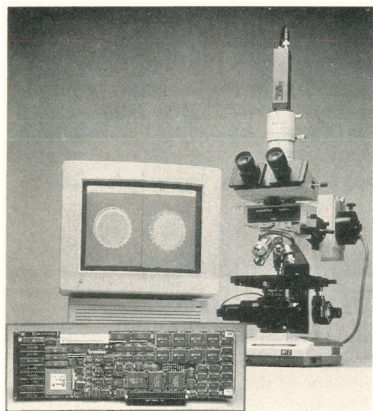


NEW PRODUCTS

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Deconvolution Software for Confocal Microscopy

National Instruments and its partner VayTek have introduced Micro-Tome Mac, a new deconvolution software system that produces confocal images. Micro-Tome Mac uses the National Instruments NB-DSP2300 and NB-DSP2300 plug-in digital signal processing boards to perform calculations that can remove the out-of-focus haze from conventional microscope images.



One can employ Micro-Tome Mac as an alternative to or in conjunction with the more elaborate pinhole-based laser scanning confocal microscopes. It can use any visible wavelength with transmitted light, DIC, polarized images or laser illumination. Micro-Tome Mac is compatible with any standard microscope. It will not cause laser burn of specimens. It captures images at video rates and minimizes photobleaching.

The Micro-Tome Mac has been used, for example, to deconvolve images of mouse brain treated with an immunochemical stain. Others have looked at fluorescently labeled neuromuscular junctions in *in vivo* mouse preparations. We are told that the

deconvolved images give considerable improvement for visualizing and measuring the axons and nerve terminals that make contact on muscle fibers.

Minimum requirements for Micro-Tome Mac include a Macintosh II computer with 8 M of memory and one free NuBus slot, a National Instruments NB-DSP2300 board, 8-bit video output, 32-bit QuickDraw, a floating-point coprocessor, and any standard microscope with video, SIT, ccd camera and digitizer. Z-axis stage motor control is recommended. Micro-Tome Mac is available from VayTek for \$15 950. *VayTek, 305 West Lowe, Suite 109, Fairfield, Iowa 52556*

The NB-DSPZ300 and NB-DSPZ305 digital signal processing board are available from National Instruments starting at \$3995. *National Instruments, 6504 Bridge Point Parkway, Austin, Texas 78730-5039*

Circle number 180 on Reader Service Card

Designing Software for a Cray Supercomputer

A new software product from Cray Research will allow scientists and engineers to design their own distributed, supercomputer-level software applications without special knowledge of supercomputer programming. The new Cray software, called IRIS Explorer 1.0, provides a variety of modules that appear on the user's workstation screen in the familiar form of visual icons. With a mouse and a Cray Research supercomputer, users can link selected icons to build their own applications programs. The Cray Research IRIS Explorer also allows users to create new modules from existing software packages.

The Cray Research IRIS Explorer was developed in conjunction with the firm Silicon Graphics. It is a supercomputer-level enhancement of Silicon Graphics' IRIS Explorer applica-

Cryo

QUALITY

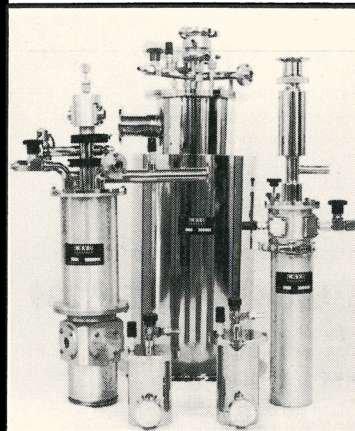
STEP

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 !!!!

CRYO INDUSTRIES

of America, Inc.

11 Industrial Way
Atkinson, NH 03811

TEL: (603) 893-2060

FAX: (603) 893-5278

QUALITY CONSTRUCTION WITH
LOWER PRICES THROUGH
EFFICIENT MANUFACTURING.

Circle number 77 on Reader Service Card

OPTICAL RAY TRACERS

for IBM PC, XT, AT,
& PS/2 computers

BEAM TWO \$89

- for students & educators
- traces coaxial systems
- lenses, mirrors, irises
- exact 3-D monochromatic trace
- 2-D on-screen layouts
- diagnostic ray plots
- least squares optimizer
- Monte Carlo ray generator

BEAM THREE \$289

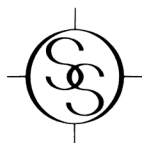
- for advanced applications
- BEAM TWO functions, plus:
- 3-D optics placement
- tilts and decenters
- cylinders and torics
- polynomial surfaces
- 3-D layout views
- glass tables

BEAM FOUR \$889

- for professional applications
- BEAM THREE functions, plus
- full CAD support: DXF, HPG, PCX, and PS files
- twelve graphics drivers
- PSF, LSF, and MTF
- wavefront display too
- powerful scrolling editor

EVERY PACKAGE INCLUDES
8087 & NON8087 VERSIONS,
MANUAL, AND SAMPLE FILES

WRITE, PHONE, OR FAX US
FOR FURTHER INFORMATION



STELLAR SOFTWARE

P.O. BOX 10183
BERKELEY, CA 94709
PHONE (510) 845-8405
FAX (510) 845-2139

Circle number 78 on Reader Service Card

tion-building software. Applications created with the Cray IRIS Explorer automatically operate in distributed processing networks containing Cray supercomputer systems and Silicon Graphics workstations packaged with the IRIS Explorer software. The new Cray software automatically establishes network connections, logs into the Cray system and transfers data and program control. *Cray Research, 655A Lone Oak Drive, Eagan, Minnesota 55121*

Circle number 181 on Reader Service Card

Design Adapter for 132-Pin Grid Array

Antona's new model ANC-9232P adapter provides the microelectronics designer with a quick prototyping aid when working with 14×14 pin grid array devices having up to 132 pins. The adapter is designed to bridge the gap between the prototype wire-wrap development process and the finished printed circuit board. Requiring just over 7 square inches of board space, the adapter provides labeled test points for each of the 132 pins to let the designer attach oscilloscope or logic analyzer probes.

The adapter is available with three centered rows to accommodate a wide variety of prototype boards. There are two LED status circuits on the adapter to provide a visual indication for user-selected signals. The user's manual includes an adhesive-backed numbering sheet to identify pins on the wire-wrap side of the prototype card to speed up the wire-wrap stage of development. Also included is a template sheet of the adapter one can use as a signal-to-pin designation guide in the debug process. Adapter versions are also available for 44, 52, 68 and 84 PGA packages. The price of the ANC-9232P is \$115. *Antona, 1643 1/2 Westwood Boulevard, West Los Angeles, California 90024*

Circle number 182 on Reader Service Card

Intelligent Micropositioning Controllers

Oriel has introduced a family of intelligent micropositioning controllers for the firm's Encoder Mike actuators. The new 18090 Series of controllers can run up to three motorized dc actuators simultaneously and independently with submicron resolution.

These Oriel controllers have enough programmable stand-alone

capability for most requirements. But for applications that require computer control, an RS-232 computer link and joystick port are built in. An optional IEEE-488 interface is also available. The user can upload or download programs from the controller via these interfaces.

A program mode allows the user



to preprogram each actuator for as many as 100 individual positions and velocities. Menus make it easy to write, edit and store complex motion sequences. Commands for immediate operation are also included. One can program the velocity, travel and "home" locations of each actuator independently. Alternatively one can simply use the "run" and "jog" commands to reach target locations quickly. *Oriel, 250 Long Beach Boulevard, Stratford, Connecticut 06497-0872*

Circle number 183 on Reader Service Card

Digital Storage Oscilloscopes

Gould has introduced two new digital storage oscilloscopes with built-in high-speed processing that allows one to perform measurements on-screen. The 150-MHz-bandwidth 4066 (two-channel) and 4068 (four-channel) instruments are the latest additions to Gould's 4060 family of 400-megasamples-per-second digital storage oscilloscopes. In addition to the "live" high-speed calculations for functions such as waveform filtering, math, fast fourier transforms, differentiation and integration, these oscilloscopes offer cursor-based x-y measurements, scaling and offset, programmable test sequences, histograms and graphic displays.

All these functions are accessed via menus. Once the required function is selected, the display updates continuously at high speed, allowing the operator to interact with the test process. The display update times,

NEW PRODUCTS

which are between 5 msec and 650 msec for complicated functions like the fast Fourier transforms, represent an improvement over the typical delays of minutes encountered when using traditional poststorage waveform techniques, we are told.

The 4066 and 4068 offer 16 nonvolatile memories for waveform storage and optional internal hard-copy capabilities. They can be fitted with IEEE-488.2 and RS-423 interfaces and they are compatible with industry-standard software, including HP-GL and LabWindows. The 4066 sells for \$7700. *Gould Inc, Test and Measurement Group, 8333 Rockside Road, Valley View, Ohio 44125*

Circle number 184 on Reader Service Card

Magnetron Sputtering Cathode Source

The Torus 6 is the newest source in Kurt J. Lesker's line of Torus magnetron sputtering cathodes. The unit accepts a target that is 6 inches in diameter and $\frac{1}{4}$ inch thick. As is the case with Lesker's smaller sources, the Torus 6 can be operated in both rf and dc modes without modification, as well as in normal or reactive sputtering processes. Both externally and internally mounted versions are available. An ultrahigh-vacuum flange with a standard 10-inch outer diameter is used on the external source, and the internal version mounts by way of a $1\frac{1}{2}$ -inch tube in a standard vacuum coupling. *Kurt J. Lesker Company, 1515 Worthington Avenue, Clairton, Pennsylvania 15025-2700*

Circle number 185 on Reader Service Card

Environmental Scanning Electron Microscope

ElectroScan is introducing its ESEM Explorer, a low-cost environmental scanning electron microscope that is claimed to "offer the advantages of the conventional high-vacuum SEM without any of its disadvantages." The Explorer can analyze difficult specimens that were previously impossible to image. It does not need sample preparation. The operator sees the sample in its natural state. Virtually anything can be put into the specimen chamber, we are told, without fear of column contamination or surface charging. Therefore conductive as well as nonconductive specimens can be imaged easily.

The Explorer provides 7-nm resolution at 30 kV and 10 torr. Its magnification ranges from $50\times$ to $100\,000\times$. Magnification is automatically corrected for working distance. *ElectroScan, 66 Concord Street, Wilmington, Massachusetts 01887*

Circle number 186 on Reader Service Card

New Literature

Mass spectroscopy—LeCroy has published *Time-of-Flight Mass Spectroscopy with Digital Oscilloscopes*, a new 10-page application note (ATS-2024) that provides guidance on how to use LeCroy digital oscilloscopes to achieve improved resolution and extended drift times in time-of-flight applications. Recent LeCroy oscilloscopes, including Models 9400, 9410, 9450 and 7200A, offer improved resolution and larger record lengths. The new LeCroy 7200A can do pulse counting. It is, we are told, "the only stand-alone instrument that can gather and display time-of-flight data in both analog and pulse-counting modes." *LeCroy, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499*

Standards—The American National Standards Institute is offering its 1992 catalog of all approved US national standards. The catalog indexes some 9400 national standards. The listed standards provide dimensions, performance and safety requirements, test methods, ratings, terminology and symbols for equipment, components, materials and products from a variety of industrial sectors. Among the fields covered are acoustics, construction, electrical systems and electronics, financial services, gas appliances and fuel, heating, air conditioning and refrigeration, information technology, measurement and automatic control, mechanical and medical devices, nuclear technology, photography, safety and health, telecommunications and textiles.

A subject index is included to simplify the search for the needed standards. Many standards are indexed under more than one term. A separate section consists of a compilation of national standards that includes designations, dates, full titles and selling prices. The catalog also includes a guide for purchasing standards. The catalog is available to ANSI members and public libraries without charge. Nonmembers can order the catalog for \$20 plus handling charges. *ANSI, Customer Service Department, 11 West 42nd Street, New York, New York 10036*

Principles of Science

A Grand Unified Theory of All Science

Joseph M. Brown

The Proton

Produced by exactly one translating neutrino taking a circular path (as a result of a collision)

The neutrino circular path must have radius and mass so angular momentum is $h/2$ which translating neutrino had

Neutrinos of all "mass" develop exactly one value of propelling force independent of path

Only one "mass" neutrino with one path radius can maintain angular momentum of $h/2$ and balance centrifugal force with propelling force--this mass is proton mass

The proton neutrino in its circular path produces an almost spherically symmetric acoustic wave consisting of three dimensional packets--this pulsing wave is the electrostatic field

Basic Research Press
120 E. Main Street
Starkville, MS 39759
(601)323-2844

218 pg. 1991 **\$39.95**
ISBN 0-9626768-0-2

Visa/MC/AMEX/Discover/Checks

Circle number 79 on Reader Service Card