NEW PRODUCTS

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. 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.

FOCUS ON SOFTWARE

Symbolic Mathematics Software System for Windows

Soft Warehouse's Derive for Windows is a new version of its well-established symbolic mathematics software system. It combines the point-and-click ease of Windows with the virtues of the older DOS versions. Derive is a symbolic math system that applies the rules of calculus and matrix algebra to solve a wide variety of problems.

Command innovations include a command toolbar, substitution dialogs, file menu commands and context-sensitive help. Enhancements in expression entry include a Greek toolbar, a two-dimensional expression entry array for matrices, and click-and-drag multiple expression highlighting. Printing capabilities now include preview, support for all types of color printers, and the ability to customize the page setup of printouts.

Derive for Windows requires Windows 95, Windows 3.1X or Windows NT running on a computer with at least 8 megabytes of memory. The price is $250. *Soft Warehouse, 3660 Waialae Avenue, Suite 304, Honolulu, Hawaii 96816-3236*

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Software for Designing Microwave Electromagnetic Structures

Infolytica has introduced its FullWave software package, intended for designers of electromagnetic structures who use UNIX, Windows 95 or Windows NT. FullWave can be used to design radio-frequency and microwave devices that use microstrips, planar transmission lines, printed circuit boards or multilayer integrated circuits. The software simulates electromagnetic effects on connectors, corners, twists, irises and other obstacles, T junctions, filters and many other structures.

The software models three-dimensional frequency structures with access ports. One can connect a different, arbitrarily shaped wavequide or transmission line to each port of the model. This lets the user analyze transitions from one waveguide to another, or from a transmission line to a waveguide.

FullWave computes the generalized scattering matrix (including higher-order modes) of the structure, as well as the impedance and admittance matrices, by means of proprietary iterative and direct solvers. The renormalized scattering matrix can be exported to microwave circuit-analysis packages in Touchstone, Citifile or Supercompact formats. Viewing options, to facilitate design parameter changes, include *E* and *H* field displays, numerical and graphical presentations or animations. *Infolytica, PO Box 1144, Place du Parc, Montreal, Quebec H2W 2P4 Canada .*

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Software Tool for Handling the Hierarchical Data Format

Fortner Research has released Noesys, which it describes as "the first desktop software tool for Windows and Macintosh operating systems" for data formatted in the Hierarchical Data Format (HDF), a powerful open-standard file format developed by the National Center for Supercomputing Applications. HDF facilitates access, organi-

zation and sharing of large quantities of data from a variety of sources.

Noesys is intended to be a catalyst for the adoption of data standards such as HDF. NASA's Earth Observing System, for example, will soon be putting out on the World Wide Web terabytes of remote-sensing data per day, most of it only in HDF. Before Noesys, we are told, the only tools available for accessing data in HDF were UNIX-based utilities and a few high-end products. Noesys is a low-cost tool that allows broad and easy access to "the tidal wave of HDF data." *Fortner Research, 100 Carpenter Drive, Sterling, Virginia 20164*

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Rejuvenating Old Whole-Body Radiation Counters with New Software

EG&G Ortec's new Renaissance software system is designed to "rescue aging and downright old clinical whole-body radiation counters" and transform them into up-to-date PC-controlled systems operating on Window NT or Windows 95. For example, it allows the operator of an old whole-body counter to keep his old NaI detectors (up to four per system), together with the shielding and the mechanics, while scrapping the obsolete electronics and software. Then by adding the Renaissance software, a few plug-in MCA cards and a low-cost PC, he acquires, effectively, a brand-new, modern whole-body counter.

The system now has a control, display and analysis package for *in vivo* spectroscopy, and output compatible with any dose-calculation program. Renaissance functioning is divided into separate Supervisor and Operator modes, which lets the supervisor set up the system and determine measurement parameters for the operator. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37830*

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Scanning-Probe Microscopy Systems for Industrial and Research Applications

TopoMetrix has introduced its Accurex II scanning-probe microscopy system, intended for high-resolution surface measurements in the semiconductor and data-storage industries. The system uses the firm's proprietary Truemetrix designer, which provides closed-loop scan linearization. This is particularly important, we are told, for applications that require accurate measurements in both the lateral and vertical directions.

In the system's atomic-force-microscopy mode, the imaging is done, without actual contact, by low-amplitude cantilever oscillation. This protects fragile surfaces from contact with the probe and, conversely, protects the probe from hard surfaces. The Accurex II can also be upgraded to do lateral-force microscopy, electrical- or magnetic-force microscopy, scanning electrical-potential microscopy, scanning thermal microscopy and lithograpy.

The Accurex II system is designed to image wafers, discs and a wide range of other sample types. The Accurex IIL, a laboratory research model, has an even greater range of sample dimensions. *TopoMetrix, 5403 Betsy Ross Drive, Santa Clara, California 95054-1162*

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New Version of a Fourth-Generation Programming Language

Research Systems, the developer of Interactive Data Language (IDL), a fourth-generation programming language for scientists, has now introduced IDL version 5.0. Because IDL obviates the traditional edit-compile-link-debug cycle, we are told, it lets users develop fully portable applications considerably faster than FORTRAN or C/C++.

The new version 5.0, we are told, enhances usability, graphics and object-orientation. With older versions of IDL, users had to learn the language syntax and write code. So the language was useful primarily for experienced progammers. Version 5.0, by contrast, has a pre-built graphical user interface that provides direct access to the most commonly used functions. This interface is more than just a set of tools. It is based on an object-orientation framework, so that each application component is integrated rather than standing alone. Furthermore, the user can modify the appearance and behavior of the interface to suit specific needs.

The graphics capabilities of IDL have also been thoroughly restructured in version 5.0 to offer truly interactive graphics, we are told, and a new ob-

ject-oriented graphics architecture. *Research Systems, 2995 Wilderness Place, Boulder, Colorado 80301.*

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Extensive Statistics and Graphical Software for Windows

SPSS, a supplier of statistical and graphical software, is offering its new SYSTAT 7.0 for Windows. Incorporating 13 new statistical procedures, this version of SYSTAT also adds several new quick graphing modes to its extensive graphic capabilities.

The newly incorporated statistical methods include: survival analysis, bootstrapping, classification and regression trees, logistic regression, canonical and set correlations, conjoint and correspondence analysis, partially ordered sets, perceptual mapping, signal detection, probit, test-item analysis and two-stage least squares.

Among SYSTAT's new quick-graph modes is Survival, which includes survival curves, quantile and reliability plots and hazard plots. The Trees mode presents regression trees with split probabilities and inlaid variable densities.

SYSTAT 7.0 also includes interactive EDA tools such as the Dynamic Explorer, which permits real-time, three-dimensional graph rotation; push-button power transformations and smoother parameter adjustments; and lassoing for case identification linked simultaneously in the data editor and across all charts. One-touch icons permit fast creation of the most commonly used charts. Chart types include three-dimensional scatter plots, contours, mosaics, confidence bands and 19 different smoothing techniques. *SPSS, 444 North Michigan Avenue, Chicago, Illinois 60611-3962*

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Free Software Configuration Design Utility

National Instruments is offering, free of charge, the 1997 version of its DAQ Designer software configuration utility for Windows. Designer is an easy-to-use interactive package that asks the system developer questions about his requirements, such as sensors, signal conditioning needs, and then produces a summary report that recommends appropriate solutions, such as plug-in DAQ boards, signal conditioners, cable assembly and software.

New features in the 1997 version include: VXI DAQ modules, PCI data-acquisition boards, PCMCIA boards for portable data acquisition, Windows NT options and image acquisition. For a free copy of the 1997 DAQ Designer disk and instructions, contact *National Instruments, 6504 Bridge Point Parkway, Austin, Texas 78730-5039*

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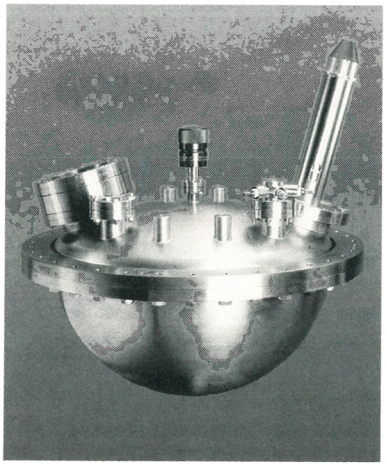
Multichannel Electron Energy Analyzer

VG Microtech has introduced its CLAM4 150-mm hemispherical electron-energy analyzer, with its new 9-channel detection system. The multichannel detector, we are told, provides very good sensitivity for XPS, AES, UPS and ISS, for high-transmission and fine-resolution applications. In XPS, for example, one gets more than 7×10^5 counts per second at 0.826 eV.



The preamplifier uses a programmable-array logic chip that includes first-in-first-out buffers to minimize dead time and thus permit very high count rates. Each channel preamplifier has a dead time of less than 17 ns. CLAM4 is fitted with a high-transmission lens that has a slim nose profile and operates at a long working distance (typically 4 cm), to allow easy access for the multiple sources.

The electronics can operate at up to 2500 eV. The unit can be used for fine-resolution work as well as for the more standard XPS and AES applications. *VG Microtech, Brookside Business Park, Bolton Close, Uckfield, East Sussex TN22 1QZ, England* ■

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