

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.

LAWRENCE G. RUBIN

FOCUS ON SOFTWARE

Symbolic and Numerical Math Program

Macsyma Pro version 2.4 is a symbolic and numerical math program that boasts substantial improvements in integration, solution of equations, sparse matrices, graph theory, special functions, and graphics over the previous version. PDEase, Macsyma's companion finite element program, uses numerical and graphical methods to solve problems in heat transfer, reaction diffusion, elasticity, electromagnetics, fluid flow, financial modeling, and other fields.

Macsyma and PDEase share the same reexecutable notebooks for text processing, animated graphics, the company's DataViewers, hypertext links, and navigator dialogs, enabling Macsyma to smoothly preprocess complicated equations for PDEase and postprocess PDEase output data. Macsyma 2.4 and PDEase are available for Windows 95, 98, and NT, and for Power Macintoshes running SoftWindows 95. *Macsyma Inc, 20 Academy Street, Arlington, Massachusetts 02476*

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Program to Analyze Sound Waves

Audioscope from Physics Academic Software allows a personal computer to operate as an oscilloscope and audio spectrum analyzer for analyzing sound waves. There are three high-resolution display modes: real-time sonogram, spectrogram, and waveform graphical display. These displays are produced by converting sound waves to an analog electrical signal using the computer's microphone. The software uses a fast Fourier transform to compute the amplitude and phase at predefined frequencies.

Audioscope is intended to engage the student's visual and auditory senses and to enhance traditional acoustical demonstrations, such as musical instrument harmonics, biophysics of speech production, effects of helium gas on speech, and analysis of touch-tone phones. *Physics Academic Software, Box 8202, North Carolina State University, Raleigh, North Carolina 27695-8202*

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Statistical Algorithms

Users of Excel spreadsheets can now perform sophisticated statistical analysis using Statistical Add-Ins for Excel, developed by the Numerical Algorithms Group (NAG). Because NAG's Add-Ins are functions rather than macros, users' results are automatically updated when data are revised. This makes the Add-Ins ideal for answering the "what if" questions typical of statistical analysis. The Add-Ins consist of more than 50 statistical algorithms drawn from NAG's FORTRAN numerical libraries and appear in Excel's function wizard, organized as four books: basic statistics, multivariate methods, time series analyses, and analysis of variance and generalized linear models. This modular arrangement allows the Add-Ins to load quickly, without large memory overheads. *Numerical Algorithms Group Inc, 1400 Opus Place, Suite 200, Downers Grove, Illinois 60515-5702*

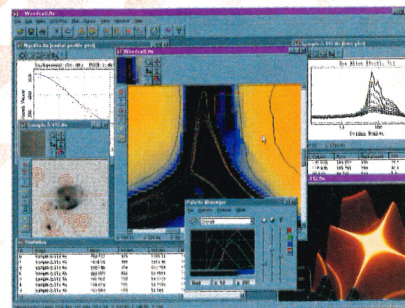
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Analysis and Visualization Capabilities

Research Systems has announced Noesys 2.0, an enhanced software tool designed for scientists and engineers who need to analyze and visualize large

MIRA® 6

version



MIRA® 6 is a remarkably rich, versatile, and highly integrated image processing application for 1-d and 2-d image data. Especially with CCD camera data, MIRA gives you the best possible results – providing a number of specialized calibration tools not available anywhere else. Best of all, MIRA is written with

a scientist's frame of mind, making it second nature for you to quickly get the results you need.

Extensible Architecture.

MIRA 6 helps you go where your science takes you. A variety of application modules extend MIRA's capabilities into diverse application areas such as spectroscopy, 3-d visualization, image morphology, and maximum entropy deconvolution. In addition, MIRA 6 provides a powerful plug-in interface, making it easy for you to write

specialized application tools and have them transparently accessible from the MIRA GUI. And for the most specialized applications, a script language is available to let MIRA solve almost any problem.

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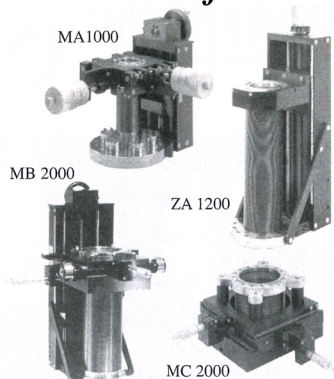
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amounts of technical and multidimensional (up to seven dimensions) data. Said to be the first visualization solution to combine a point-and-click graphical user interface with the company's interactive data language, the program allows users to change the numeric format and font in the data set, data table, and grid editors.

The NASA Earth Observer Satellite community has used Noesys 2.0 to visualize and manipulate complex satellite and astronomy data. *Research Systems Inc, 4990 Pearl East Circle, Boulder, Colorado 80301*

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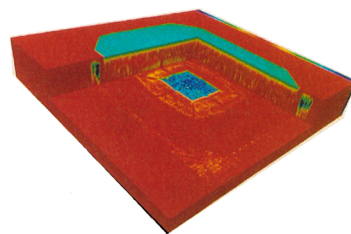
Testing and Data Acquisition

Keithley Instruments has introduced XControls, a library of software components for testing and data acquisition. For example, the library allows a programmer to insert in the operating system graphical user interface (GUI) controls in the form of graphs, analog meters, digital displays, lighted annunciator panels, selector knobs and dials, start/stop buttons, toggle switches, and more. The algorithms provide high-speed processing, particularly for graphing functions. One set of GUI controls is for stand-alone desktop applications and the other for Internet applications, where the user can interact with a test system using a standard Web browser. Included in XControls is a hardware-controlled timer, which uses a preassigned interrupt to prevent time loss when another Windows function calls. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, Ohio 44139*

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Acoustic Microscope Imaging

Sonoscan has released Zip Slice, a new software module that automatically images the entire internal three dimensions of an integrated circuit (IC) package. The module commands the company's C-SAM acoustic microscope to produce a sequence of nondestructive acoustic slice images, each of which is of a specified internal layer within the IC package. The number of slices depends on the thickness of the IC; typically 15 to 50 slices are used. To see internal features of the IC nondestructively, the stack is sectioned along a plane selected by the user. If a two-dimensional plane does not show the desired features, the user may define and remove a three-dimensional cutout



from any part of the stack. The resulting cutaway stack may show, for example, the point of origin of a popcorn crack and its vertical path inside the IC package. The user can make as many sections or cutouts in a single stack as desired. *Sonoscan Inc, 530 East Green Street, Bensenville, Illinois 60106*

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Mathematical Notation in Word Processing Documents

Design Science is now shipping MathType 4 for Windows, the professional version of the company's Equation Editor, which is included in Microsoft Office and other applications. The new version is said to exceed the capabilities of the word processor Equation Editor. MathType 4 has hundreds of additional mathematical and technical symbols and templates, color support for professional publishing, translators to TeX, LaTeX, and MathML, new commands that add important technical word processing features to Microsoft Word, and new Euclid fonts for producing documents that have the classic LaTeX look. We are told that MathType 4 is one of the first commercial software packages to support MathML, an XML-based language for representing mathematical notation in Web-based technical documents. *Design Science Inc, 4028 Broadway, Long Beach, California 90803*

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Alpha Spectroscopy Data Management and Analysis

EG&G ORTEC's Alpha Vision-32 is said to provide complete control of a variety of alpha spectroscopy systems and sample types, designed for the high-throughput, high-quality expectations of current nuclear counting facilities. AlphaVision-32 provides desktop configuration, nuclide library editing, calibration and sample analysis setup, data review, quality assurance moni-

toring, graphical sample re-analysis, graphical analysis results review, and database setup.

We are told that the new system's integration into Windows 95, 98, and NT is the most complete among existing alpha spectroscopy packages. For users who need advanced data management tools, AlphaVision-32 provides comprehensive storage and recovery of all sample and quality assurance parameters in an industry-standard database format. *EG&G ORTEC, 100 Midland Road, Oak Ridge, Tennessee 37831*

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Digital Microscopy

AxioVision version 2.0 continues the Zeiss line of modular image acquisition and archiving systems for digital microscopy. It can control any of the company's motorized microscopes, providing new possibilities for digital image acquisition and processing, digital image and text archiving, and the convenient compilation of reports. Two different operating modes are available: the user mode for routine applications and the expert mode for high flexibility in research applications. AxioVision permits the interactive measurement of object distances, angles, and areas in the image, the acquisition of optical sections (Z-stacks), and the automatic recording of multichannel fluorescence images. An automatic focusing control permits the recording of a specimen in different focal planes; the optical sections thus obtained can be improved using three-dimensional image processing techniques. *Carl Zeiss Inc, One Zeiss Drive, Thornwood, New York 10594*

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Multitasking Environment for Spectroscopy

Ocean Optics has introduced OOIBase32, a software program for operating the company's spectrometers. OOIBase32 allows users to assign hardware and drivers, as well as manipulate data and display parameters, to each open window. The result is said to be the first true multitasking environment for spectroscopy. Users can perform basic measurements such as absorbance, reflectance, emission, and real-time signal processing functions, such as charge-coupled detector linearity correction, electrical dark signal and stray light corrections, boxcar pixel smoothing, and signal averaging. The program also enables time acquisition

experiments for kinetics applications, and reference monitoring by single wavelength, integrated intensity, or wavelength by wavelength. *Ocean Optics Inc, 380 Main Street, Dunedin, Florida 34698*

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Data Acquisition and Process Control

Microstar Laboratories' DAPcell software is intended for distributed intelligent data acquisition and process control on industrial networks. Featuring a sustained data rate of 1.67 megasamples per second (a 16-bit sample every 600 ns), each DAPcell server provides low-level control for the company's DAP boards and associated industrial input and outputs. Using any Windows NT or Windows 95/98 personal computer (PC), users can exercise high-level control through the data acquisition software package of their choice. With external expansion boards, a single DAP board can acquire 512 analog inputs and 128 digital inputs, and it can control 66 analog outputs and 1024 digital outputs. A single DAPcell server PC can support up to seven DAP boards as standard, and up to 14 as a special order. A network—either dedicated to data acquisition and control or else shared with other applications—may include as many DAPcell server PCs as needed. *Microstar Laboratories, 2265 116th Avenue NE, Bellevue, Washington 98004*

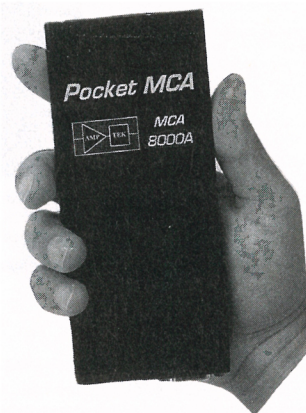
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Image Analysis

SigmaScan Pro 5.0 from SPSS provides the means for studying the structure and size of visual information. The program's image analysis and data manipulation techniques are said to transform images into reliable statistics, understandable graphs, and useful scientific conclusions. New features include automation of image enhancement and measurement and analysis routines; expanded imaging options, such as saving or converting images to different types to improve image analysis; new color adjustments; and the application of computations directly within the new Excel-formatted worksheet. The software can be used for applications such as counting bacterial cells for growth studies, characterizing microstructural flaws in steel, or isolating typographic map features. *SPSS Inc, 233 South Wacker Drive, 11th Floor, Chicago, Illinois 60606-6307*

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Multichannel Analyzer World's Smallest 'Pocket MCA'



Size: 6.5" x 2.8" x 0.8"

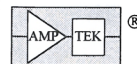
(165mm x 71mm x 20mm)

Weight: <300 grams (including batteries)

The MCA8000A is a full featured, low power Multichannel Analyzer intended to be used with a wide variety of detector systems.

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- Stores up to 128 spectra
- 24 hours of continuous data acquisition from two 1.5V AA batteries
- Conversion time $\leq 5 \mu s$ ($\geq 200,000$ cps)
- Two stage input analog pipeline
- Differential nonlinearity $\pm 0.6\%$
Integral nonlinearity $\pm 0.02\%$
Sliding-scale linearization
- Two peak detection modes:
First peak after threshold (nuclear spectroscopy)
Absolute peak after the threshold (aerosol particle detection)
- Two TTL compatible gates for coincidence & anticoincidence
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