

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

Software for Java Programmers

Visual Numerics has released JMSL v1.0, a product that brings the company's IMSL repository of algorithms to Java programmers. JMSL, a collection of mathematical, statistical, and charting classes written in Java, includes algorithms for complex arithmetic, optimization, integration and differentiation, nonlinear equations, analysis of variance, and random number generation. It has the added benefit of 2D charting, including algorithms for x - y plots, pie and bar charts, and high-low-close charts. Like the IMSL tools for C and Fortran developers, JMSL enables Java programmers to eliminate the need to write code from scratch, thus reportedly reducing source code by up to 95%. It also provides platform independence and network-centric deployment. *Visual Numerics Inc., 5775 Flatiron Parkway, Suite 220, Boulder, Colorado 80301, <http://www.vni.com>*

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Modeling and Simulation of Physics

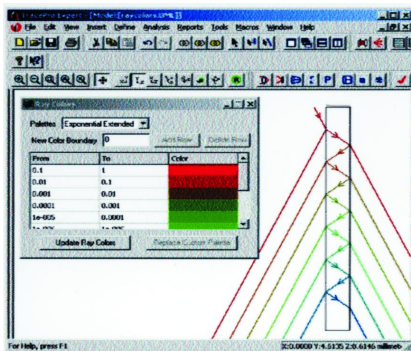
COMSOL has introduced FEMLAB v2.2, based on the company's MATLAB multiphysics modeling and simulation software. FEMLAB provides a new electromagnetics module with new formulations and elements for modeling electromagnetic processes in AC and DC power systems, and wave propagation in microwave engineering, and photonics. The module features modeling of inhomogeneous waveguides, anisotropic materials, and lossy media and enables analyses to be carried out in 1D, 2D, and 3D. FEMLAB v2.2 also provides an upgrade of the chemical engineering module, including enhanced postprocessing capabilities and the modeling of transport in anisotropic materials, which can be used, for example, to study porous media. The new product also features an alpha version of a

new solid mechanics module that provides 3D beam and solid elements. *COMSOL Inc, 8 New England Executive Park, Burlington, Massachusetts 01803, <http://www.comsol.com>*

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Illumination and Optomechanical Analysis

Lambda Research has announced version 2.4 of its TracePro software for illumination and optomechanical analysis. The new release incorporates multiple exit surfaces, a source spreadsheet, two new surface property catalogs, user-defined surface properties using dynamic linked



libraries, and the ability to define nonuniform temperature distributions on surfaces. The company's RepTile algorithm models a huge number of repetitive surfaces used in today's display and lighting products; the RepTile visualization function is included in the TracePro Expert edition. Version 2.4 offers new display options that allow users to define ray color as a function of flux, implements directional ray arrows to show ray direction for split-ray components (see figure), and adds working (local) coordinate systems to transform global origins. *Lambda Research Corp, 80 Taylor Street, Littleton, Massachusetts 01460-4400* <http://www.lambdaresearch.com>

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Video Analysis Software

VideoPoint 2.5 from Lenox Softworks is a classroom video analysis software with a new Internet movie browser and movie capture capabilities. The package allows students to collect position and time data from digital video in the form of "video points." These points can be combined to form other calculations such as center-of-mass locations and distances between points. The movie browser allows users to share with others movies created for VideoPoint analysis. The browser also provides hundreds of movies created by other VideoPoint users. A movie capture feature enables users to capture video using most analog and digital cards, then edit the videos, select first and last frames, and reduce or increase the number of frames. Past evaluations have shown that the appeal of VideoPoint is its ability to make students both comfortable with and interested in video on a computer. *Lenox Softworks, 114 Main Street, Lenox Massachusetts 01204, <http://www.lsw.com>*

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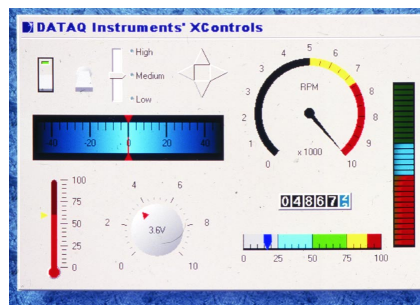
Data Analysis and Graphing Software

OriginLab has released Origin 7, reportedly the first scientific software to offer, in a single package, presentation-quality graphics, C, and, in partnership with the Numerical Algorithms Group (NAG), about half of the NAG C library. Those C routines enable computations ranging from simple statistics and Fourier transforms to linear algebra and multivariate methods. Other new features of Origin 7 include in-place text editing and drawing tools; the company's non-linear least squares fitting Wizard with automatic parameter initialization; expanded statistics including categorical data support; and data import from Minitab import, SigmaPlot import, and Thermo Galactic SPC. The company's OriginPro 7 incorporates all of the features of Origin7 in addition to providing sophisticated peak analysis. *OriginLab Corp, One Roundhouse Plaza, Northampton, Massachusetts 01060, <http://www.originlab.com>*

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Data Acquisition Applications

DATAQ Instruments has announced two new products: the XControls



Instrument Pack and XControls Professional Pack software toolkits. These packs incorporate an array of controls, indicators, and other active, graphic elements that can be assigned different signals, then organized onscreen to form virtual panels delivering views of data acquisition processes. The Instrument Pack contains 27 devices, including knobs and switches, numeric readouts, LED bars and spirals, gauges, and a waveform plotter. The Professional Pack adds to that base 26 additional tank and valve icons, sliding scale gauges, and tasked timers. The XControls are compatible with mainstream programming languages, as well as Microsoft Excel, thus enabling nonprogrammers to create graphical user interfaces for Excel-based data acquisition applications. *DATAQ Instruments, 241 Springside Drive, Suite 200, Akron, Ohio 44333-2473, <http://www.dataq.com>*

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Bibliography Software

ISI ResearchSoft has released Reference Manager 10 Network Version, an upgrade that now offers the same features as the single-user version—an enhanced integration with Microsoft Word, and new ways to store links to Web-based research. The new version also offers direct access to the company's ISI Web of Science, a service that provides complete bibliographic data, full-length author abstracts, and cited references for approximately 8600 journals. The network version now has four dedicated fields in each reference for storing links to full-text documents, PDF files, and image files. It provides links to data visualization software and the OpenURL standard, reportedly now offering network users access to the latest technologies. *ISI ResearchSoft, 2141 Palomar Airport Road, Suite 350, Carlsbad, California 92009, <http://www.isiresearchsoft.com>*

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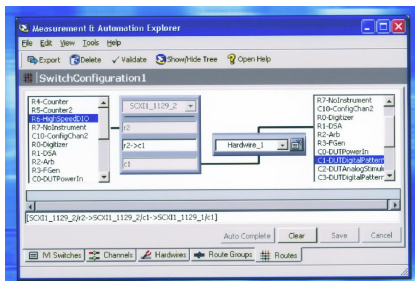
Analysis of Spectral Data

Thermo Galactic has introduced QuickQuant, a new software application for univariate analysis of spectral data that allows the spectroscopist to use classic methods of band height or band area for quantitative analysis. QuickQuant supports an interactive user interface for quantitative predictions; the system's calibration builder features an interface that makes it easy to transition from calibration development to unknown sample prediction. Multiple components can be defined, and the bands for each component can be graphically adjusted. Baselines for each band may be automatically calculated using one of several predefined algorithms, or users can define custom baselines for any band. Calibration equations can be computed using linear, quadratic, or cubic curves. *Thermo Galactic, 395 Main Street, Salem, New Hampshire 03079, <http://www.thermogalactic.com>*

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Switch-Management Software

NI Switch Executive from National Instruments is claimed to be the first open switch-management software available. By combining several switch connections into a single configuration, it simplifies switching configurations in applications such as testing telecommunication systems with hundreds of test points. The new software displays the channels that make up a switch system so that the user can view connections between test devices and test points and name the channels so as to identify the connections. NI Switch Executive software integrates with the company's LabVIEW and TestStand development environments and can convert switch configurations from one test sequence to the next. Traditionally, users have had to disconnect each switch between test sequences; but now, common connections in switch configurations can be



sustained between tests. *National Instruments, 11500 North Mopac Expressway, Austin, Texas 78759-3504, <http://www.ni.com>*

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Computational Power on the Web

Wolfram Research has announced webMathematica, a new product that enables developers to add interactive calculation and visualization to a Web site by integrating the company's Mathematica with the latest Web server technology. This concept may have important consequences for incorporating a new generation of interactive technology into Web sites. Mathematica and webMathematica have the same underlying engine, but they provide fundamentally different user interfaces and are aimed at different types of users. Mathematica might be considered a development environment for webMathematica sites. For example, Mathematica is suitable for working on code that models some physical process—code that could then be placed into a webMathematica site to enable people to run the model and use its results for their regular work. *Wolfram Research Inc, 100 Trade Center Drive, Champaign, Illinois 61820-7237, <http://www.wolfram.com>*

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Real-Time Analyzer

True Audio has released TrueRTA, audio measurement software for PCs that run Windows. Incorporating an array of digital signal processors, the product enables the PC to work as a real-time analyzer (RTA), which is a specialized spectrum analyzer used to visually display the frequency content of audio signals ranging from test tones to live musical performances. TrueRTA operates at four performance levels. The free-to-download Level 1 includes a one-octave RTA with adjustable frequency and dB limits, a sine wave generator, pink noise source, true-rms voltmeter, and an oscilloscope. In Level 2, the RTA resolution is increased to one-third octave and dBu metering is added. The Level 3 version provides a one-sixth octave, resolution and adds crest factor metering and a digitally generated sweep. The Level 4 product features one-twelfth and one-twenty-fourth octave RTAs and adds a white noise source. *True Audio, 387 Duncan Lane, Andersonville, Tennessee 37705-3515, <http://www.trueaudio.com>* ■

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