t's human nature to compare one thing with another; when PittCon visited New Orleans, Louisiana, for the third year in a row in March, many of us couldn't help but look for the signs that indicated the event had changed in spite of the familiar location. The world feels like a very different place than it did in March 2001, as evidenced by both the increased security at the airport and the lectures and press conferences focusing on detection of chemical and biological weapons.
However, the one thing that doesn’t change is that PittCon can be relied on for discovering new instrumentation and the latest in spectroscopic technology. As in years past, the *Spectroscopy* editors gathered information from news releases, interviews, press conferences, the Internet, and other resources for our 17th PittCon wrap-up article. Again, we offer basic information about each product and a web site for your convenience. As always, many of these new products also appear in this month’s color Resources section.

Although the editors made an effort to include all companies that introduced new spectroscopy products at the show, we admit beforehand that it is difficult to create an exhaustive list, and space limitations prevented us from including every product.

**ATOMIC SPECTROSCOPY**

**Atomic Absorption Systems**

PerkinElmer Instruments (www.perkinelmer.com)
— Analyst 200 atomic absorption system: Includes a touch-screen available in multiple languages, snap-in and snap-out tools to facilitate replacement, a fully automated gas box, and a double-beam Echelle optical system with a solid-state detector.

PerkinElmer Instruments Analyst 200 atomic absorption system

Varian (www.varianinc.com)
— SpectrAA-Duo atomic absorption system: Two permanently mounted atomizers under the control of one computer provide simultaneous operation of flame–hydride and graphite furnace measurement techniques for environmental, pharmaceutical, and chemical laboratories.

**Atomic Emission Systems and Accessories, Including ICP-MS**

GBC Scientific Equipment (www.gbcsci.com)
— OptiMass 8000 ICP–time-of-flight mass spectrometer: Benchtop system offers simultaneous full mass spectrum and fast transient analysis, producing a single full mass spectrum in 30 μs.

Jobin Yvon (www.jyhoriba.com)

Leeman Labs (www.leemanlabs.com)
— Prodigy High Dispersion ICP system: Incorporates a programmable array detector and a high-dispersion Echelle spectrometer.

PerkinElmer Instruments (www.perkinelmer.com)
— Elan 9000 ICP-MS system: Designed to improve productivity in testing laboratories with moderate to heavy loads of ultratrace-level samples.

— Elan DRC II ICP-MS system: Designed for analyzing traditionally difficult samples, it is said to eliminate plasma-based polyatomic interferences before they reach the quadrupole mass spectrometer.

Spectro Analytical Instruments (www.spectro-usa.com)
— Ciros M CCD ICP analyzer: Has no moving parts and performs element determination simultaneously in laboratories not requiring extended vacuum ultraviolet performance.

— Spark Ablation Sampling System (SASSY): For use with the company’s Ciros ICP analyzers, it is suitable for testing nearly all electrically conductive metals and certain nonmetallic substances.

Spectro BioNova (www.spectrobinova.com)
— Ciros CCD: Charge-coupled-device ICP analyzer detects trace and ultratrace contaminants in pharmaceutical raw materials and finished products by simultaneously covering the effective wavelength range of 125–770 nm.

Thermo ARL (www.thermoarl.com)
— Spark-DAT: Analytical tool suited to studying the spectrographic sparking process allows simultaneous measurement of parameters for production control of metal samples. It operates online, supplying parameters in seconds.

Thermo Elemental (www.thermoelemental.com)
— X-Series ICP-MS: Benchtop instrument provides ultratrace elemental analysis in semiconductor-grade chemicals including hydrofluoric acid, propan-2-ol, and other corrosive acids and organic materials.

— TEVA software, version 1.2: For use with the company’s IRIS Intrepid ICP series of products, the validation analysis software includes an enhanced wavelength calibration routine and can be used for both routine and research requirements.

Varian (www.varianinc.com)
— Vista-MPX ICP-OES spectrometer: Can measure all 22 EPA environmental elements (method 200.7) in 5 min per sample. The system is designed at a lower cost to make it available to labs that previously could afford only sequential ICP systems, according to the manufacturer.

**X-ray Analysis Systems and Accessories**

Bruker AXS (www bruker-axs.com)
— D4 Endeavor x-ray diffraction analyzer: Featuring a sample-handling concept for 66–120 samples and a very small footprint, the system covers analytical tasks from qualitative and quanti-
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Diffractometer analysis, microstrain and
crystallite size determination, and resid-
ual stress analysis to crystal structure
refinement and solution. It accommod-
dates samples of varying shape, mor-
phology, composition, and quantity.
— S4 Pioneer x-ray spectrometer: For
multielemental (beryllium–uranium)
analysis in solids, powders, and liquids,
the system uses an external cooling
water system to facilitate high-power
excitation at 4 kW.
— S2 Ranger x-ray spectrometer:
Benchtop EDX system operates using a
self-explanatory touch screen, eliminat-
ing the need for keyboard and mouse,
and accommodates as many as 28 sam-
plies at once.
— D8 Discover with GADDS: Developed
for combinatorial screening, system uses
x-ray technology to provide nondestruc-
tive testing of materials libraries.

EDAX
(www.edax.com)
— Alloy Checker x-ray tube analyzer:
Hand-held unit weighs < 2 kg, can pro-
duce 35 kV of accelerating energy, and
provides grade identification, chemistry,
and spectrum collection and display
within seconds of coming into contact or
close proximity with a metal or alloy.
— Eagle III µ-Probe micro-XRF ele-
mental analyzer: Uses capillary optics to
concentrate the x-ray beam size to a
100-μm diameter on the sample and al-
lows nondestructive, simultaneous
sodium–uranium analysis of solids, li-
quids, and powders.
— CoatMaster 450 coating thickness
measurement machine: XRF system of-
fers rapid sample loading, automated
 multicollimator changer, and high-
precision xyz motorized stage for elec-
trons, microelectronics, printed cir-
cuit boards, and other similarly sized

Horiba Instruments
(www.hii.horiba.com)
— SLFA-UV21 sulfur-in-oil analyzer:
Uses combustion ultraviolet fluores-
cence to measure levels of sulfur as low
as 1 ppm, for use in compliance with
ASTM D5453.
— SLFA-2800 x-ray fluorescence sulfur-
in-oil analyzer: Offers a detection limit
of 5 ppm for use in compliance with
ASTM D4294.

Innov-X
(www.innov-xxsys.com)
— XT-400 Lead Risk analyzer: Includes
modes for HUD, EPA, and OSHA test-
ing protocols. Incorporates on-board,
removable Pocket PC for fast entry of
testing location data.
— XT-400 Environmental Metals ana-
lyzer: Will analyze all eight RCRA met-
als, plus 11 of the 12 EPA priority pol-
lutant metals, including Cr, Ni, Cu, Zn,
As, Se, Ag, Cd, Sn, Sb, Ba, Hg, Tl, and
Pb (others may be added).

Jordan Valley
(www.jordanvalley-apd.com)
— EX-310S sulfur detector: Uses x-ray
fluorescence spectrometry to measure
total sulfur in petroleum and petroleum products for compliance with ASTM method D4294 and other applications. — EX-3600M spectrometer: A direct-excitation energy-dispersive x-ray fluorescence detector designed for analyzing difficult sample matrices encountered in plastics and environmental and geological testing. The system can be customized to meet the needs of a particular application.

**Kratos Analytical**  
(www.kratos.com)  
- XRD-7000 x-ray diffractometer: Designed to accommodate extra-large samples using a high-precision vertical 0-0 goniometer, it generates scan rates as high as 100°/min and provides angle reproducibility of 0.0002°.  
- EDX-900 benchtop spectrometer: EDXRF system has a thermoelectrically cooled silicon drift detector that does not require liquid nitrogen. It operates at −10 °C while handling count rates as high as 10°.  
- XRF-1800 spectrometer: Wavelength dispersive sequential x-ray fluorescence system measures elements from beryllium to uranium in < 3 min and performs local area testing for wavelength dispersive analysis.  
- Axis Ultra x-ray photoelectron spectrometer: Combines real-time imaging with small-area analysis using spatially keyed, multipoint spectroscopy.

**Philips Analytical**  
(www.analytical.philips.com)  
- CubiX PRO and CubiX FAST x-ray spectrometers: High-speed systems are designed for industrial applications requiring high throughput. CubiX FAST is as much as 100 times faster than conventional detection technology, according to the company. CubiX PRO can be controlled by external automation systems including LIMS.  
- MiniPal 2 EDXRF spectrometer: Benchtop unit performs nondestructive analysis of elements from sodium through uranium, in concentrations from 100% to ppm levels, without special accessories or modifications.  
- Pro-Trace XRF SuperQ software: Employs a Windows-based graphical user interface for calculating net intensities in trace-element analysis.  
- FastScan module: Upgrade for PW2400 and PW2404 XRF spectrometers, this hardware and software enhancement increases processing speed, allowing full standardless analysis of unknown samples in < 2 min.  
- MiniMate software: Windows-based software platform for the MiniMate system reportedly is easier to use than its predecessor and offers most of the same features as those of the larger MiniPal 2 EDXRF benchtop spectrometer.  
- Tutorware XRF instructional software: Learning and information course on CD covering XRF techniques and practices.  
- XRDML data platform for X-Pert XRD software: Allows data analysis using algorithms not included in software and custom programming for processing XRD measurement data.

**Spectro Analytical Instruments**  
(www.spectro-usa.com)  
- 682-LS low-sulfur analyzer: Enables remote self-diagnosis of sulfur levels with an interface to control the system that allows constant monitoring.  
- XEPOS low-sulfur analyzer: Designed with the company’s polarized excitation geometry, the analyzer reportedly will provide a detection limit of > 1 ppm for sulfur in fuels.

**Spectro BioNova**  
(www.spectrobionova.com)  
- XEPOS XRF analyzer: Designed for pharmaceutical and life science industries, system measures elements sodium through uranium and requires little or no sample preparation.

**Thermo ARL**  
(www.thermoarl.com)  
- ARL OPTIM’X XRF analyzer: Can be configured for simultaneous and sequential analysis of sulfur and lead in substances including petrochemical refinery products, chemicals, and food.

**Thermo NORAN**  
(www.thermonoran.com)  
- MicronX XRF metrology tools: Based on EDXRF, systems measure thickness and composition of as many as six layers of deposited metals simultaneously for thin-film measurement applications in the semiconductor, microelectronics, optotelecommunications, and data storage industries.  
- Vantage x-ray microanalysis software, version 2.3: New system features include Vista intuitive user interface and spectral imaging. It is designed for applications on scanning and transmission electron microscopes.

**MOLECULAR SPECTROSCOPY**

**FT-IR/NIR/Raman Systems and Accessories**

**Analytical Spectral Devices**  
(www.asdi.com)  
- Compliance software: New software feature for company’s line of NIR analyzers allows users to demonstrate compliance with FDA 21 CFR Part 11 regulations.  
- Filter wheel: Accessory for company’s NIR analyzers performs tests on wavelength, linearity, and noise to allow users to verify that instruments are in compliance with NIR spectroscopy standards.  
- QualitySpec TI NIR analyzer: A validated on-line, near-infrared system that analyzes the contents of blister packages without physical contact.

**Axiom Analytical**  
(www.goaxiom.com)  
- RFP-540, -550, -440, and -450 Raman probes: Designed to analyze a range of powders and turbid fluids, each model is optimized for a particular in situ process or laboratory use.  
- FCT-900 series cross-line transmission cells: Near-IR harsh-duty trans-
mission cells are said to be reliable under the extreme conditions of high temperature, thermal shock, high pressure, and aggressive chemistries found in many on-line process applications.

— FMX-200L series multiplexers: Fiber-optic multiplexers handle rapid computer-controlled switching between multiple mid-IR sampling probes or flow cells.

— FPT-820 NIR transmission probe: Combines the company’s proprietary metal window seal design with reduced diameter (19 mm).

**Bio-Rad Laboratories, Informatics Division** (www.informatics.bio-rad.com)

— Raman spectral databases: For use within KnowItAll, HaveItAll subscrip-

— Analytical Spectral Devices Filter wheel

— Tensor FT-IR spectrometers: Designed for daily laboratory work as well as sophisticated R&D applications, systems feature high sample throughput and sensitivity as well as intuitive user interfaces.

— Hyperion IR microscopes: Feature full automation, infrared chemical imaging, clear sample viewing, and a variety of IR and visible objectives for applications such as forensics, biomedicine, polymer science, and engineering.

— Helios IR microscope: Provides clear sample viewing and infrared analysis using attenuated total reflection, external or diffuse reflection, or reflectance absorption for areas such as forensics, quality control, art conservation, polymer identification, and contaminant analysis.

— Opus IR and Raman software, version 4: Includes a complete set of data manipulation and evaluation methods using modern mathematical algorithms and can be augmented or customized to meet user’s needs. Opus/Validation package supports requirements of FDA’s 21 CFR Part 11 regulations.

**Burle Industries** (www.burle.com)

— 85104 MCP photomultiplier: For red and near-infrared spectral detection in applications requiring low light detec-
ation, such as chemiluminescence and bioluminescence.

Chemicon
(www.chemimage.com)
— Condor macroscopic chemical imaging systems: Family of products combines visible and NIR spectroscopy with Widefield chemical imaging for analysis of large and irregular samples.
— ChemImage software, version 6.0: New features of chemical image analysis and visualization software include added image-processing routines as well as image alignment.

CVI Spectral Products
(www.cvispectralproducts.com)
— SM302 and SM302-EX InGaAs array spectrometers: Standard- and extended-model tunable spectrographs offer dual grating capacity for high resolution, wide spectral coverage, or both.
— SM200 and SM240-USB UV/Vis–NIR spectrometers: Now offer the option of an embedded, 16-bit, 500-kHz A/D converter, eliminating the need for plug-in computer boards.

Digilab
(www.digilabglobal.com)
— FastImageIR spectrochemical imaging system: Incorporates the company’s UMA 600 for imaging and single-point analysis, Lancer focal plane array detector, and the Excalibur rapid scan spectrometer.
— SimATR infrared microanalysis platform: Includes a small-footprint FT-IR spectrometer with an integrated DuraScope diamond ATR accessory (SensIR Technologies, Danbury, CT).
— ATR imaging instrument: Enhancement to the company’s Stingray and FastImageIR infrared spectrometers is said to improve measurement speed and spatial resolution.
— Lancer focal plane array detectors: For Stingray and FastImageIR spectrochemical imaging systems, FPAs are optimized for spectroscopy use.

FOSS
(www.foss.dk)
— XDS NIR Rapid Content Analyzer: Multipurpose system tests an assortment of chemical and pharmaceutical substances, from raw materials to liquids and solids.
— XDS Rapid Liquid Analyzer: Tests liquids and suspensions to provide quantitative and qualitative results for QA/QC.
— XDS NIR SmartProbe Analyzer: Ruggedly manufactured system tests liquid and solid active ingredients and excipients in warehouse or plant environments.

Hamilton Sundstrand Applied Instrument Technologies
(www.hssensorsystems.com)
— Analect Diamond MX is a rackmount, multichannel process FT-NIR for measuring liquids, solids, pellets, and powders.
— RovIR transportable FT-IR and FT-NIR: Mobile system can be moved from location to location or used as a benchtop unit for lab-scale reaction monitoring.

Inno-Spec
(www.inno-spec.de)
— MS-100 series spectrometer modules: Modules are based on a reflection spectrograph with a 40-mm focal length and single concave diffraction grating with high-quality surface coating.

InPhotonics
(www.inphotonics.com)
— Process RamanProbe: New options include a welded seal for the 3/8-in.-diameter extension tube, to enable monitoring of corrosive solutions; and
a new housing that allows optical components to be hermetically sealed from the outside environment.

— Reaction RamanProbe: Raman fiber-optic probe is designed for monitoring reactions as high as 200 °C in laboratory or industrial settings.

International Crystal Laboratories (www.internationalcrystal.net)
— Real Crystal IR sample cards: Disposable sample cards are mounted with nonabsorbing substrate for qualitative infrared analysis.
— PTFE and polyethylene IR sample cards: Produced under license from 3M (St. Paul, MN), cards exhibit absorbance bands in the 4400–400 cm⁻¹ spectral range.

Jasco (www.jascoinc.com)
— VIR-9000 series portable FT-IR: For use in bench-top laboratory applications or in the field or remote locations for on-site measurement.
— Ventuno Raman microscope: Comes with a green laser as standard; optional second laser can be added for special applications.

Jobin Yvon (www.jyhoriba.com)
— LabRam Raman system: A high-resolution system that allows for two detectors.
— LabRam-IR microscope: A combined dispersive Raman and FT-IR microscope that can make dual measurements in the same sample area.

Jobin Yvon, Optical Spectroscopy Division (www.jyhoriba.com)
— Raman Multiwell Analyzer: Allows rapid analysis of liquids and solids in well plates and microarrays.
— Raman inverted microscope system: Uses a directly coupled inverted microscope to enable cellular studies and other applications requiring laser excitation from beneath.
Kaiser Optical Systems
(www.kosi.com)
— RamanRx1 high-throughput screening analyzer: Automated well-plate analyzer is designed for use with picogram to milligram quantities in the pharmaceutical and combinatorial chemistry arenas.
— RamanRx2 multi-reactor analyzer: A four-channel, in situ Raman system designed for use in early process development parallel synthesis reactor systems requiring real-time data collection on all reactor vessels.

LT Industries
(www.ltindustries.com)
— LT Bus system: DCS interface for online applications is designed to control any of the company’s NIR analyzers.
— AccuScreen NIR analyzer: For powder and granulation testing, system includes a surface-positioning sensing sample chamber.
— Complete Beer Analysis (CBA) system: Uses NIR technology with a fiber-optic probe to test alcohol level, original gravity, and calories of beer products as they leave the blender.
— Freedom probe: A diffuse-reflectance testing probe that allows complete measurement of powders and penetrable surfaces without physical contact.

MTEC Photoacoustics
(www.mtecpas.com)
— MicroLap FT-IR accessory: For depth analysis of layered or gradient composition samples. It allows FT-IR spectra of each of the sample’s layers to be measured in increments of several micrometers.

Nanonics Imaging
(www.nanonicsimaging.com)
— NSOM/SPM-100: System integrates all forms of scanned probe microscopy (SPM) and conventional optical microscopy. It can be combined with any inverted, upright, or dual optical microscope.

NDC Infrared Engineering
(www.ndcinfrared.com)
— MM710 NIR gauges: Intelligent measurement systems are supplied precalibrated and require no routine maintenance.

Ocean Optics
(www.oceanoptics.com)
— NIR312 miniature fiber-optic spectrometer: Designed for applications that require sensitivity in the near-infrared region, such as tunable laser wavelength calibration, glucose sensing, moisture analysis, and polymer characterization.

PerkinElmer Instruments
(www.perkinelmer.com/inst)
— Spectrum Spotlight 300 IR: FT-IR imaging system generates images with complete chemical information in minutes.
Pike Technologies  
(www.piketech.com)  
— Beam condensers: For IR spectroscopy, models feature enclosed optics for a purged environment and easy access to the sampling area.  
— Disposable sample cards and 30° specular reflectance module: DPT reflectance–absorption sample cards have a highly reflective surface. Downward-looking specular reflectance module is designed for use with DPT cards and has a slide-mount sample holder that fits all FT-IR spectrometers.  
— FT-IR accessories: Automated FT-IR accessory product line now features joystick control as well as microstepping options to allow higher density profiles with smaller spot sizes to be analyzed.  
— IntegratIR NIR module: Near-infrared integrating sphere module is designed for laboratories that have a standard FT-IR spectrometer equipped with an NIR light source and beamsplitter.

Polytec PI  
(www.polytecpi.com)  
— XTRA wavelength-stabilized integrated diode laser system: A compact and rugged tapered laser source for Raman spectroscopy, in particular Raman microscopy, for use in environmental and industrial analytical testing.

Remspec Corporation  
(www.remspec.com)  
— SpotView system, high-sensitivity version: For surface analysis and cleaning validation.  
— ReactionView-N reaction monitoring system: Multichannel monitoring system now offers 4, 8, or 16 parallel channels, all supported by one FT-IR source.

Renishaw  
(www.renishaw.com)  
— Raman/AFM/NSOM system: System integrates the company’s standard Raman spectroscopy systems and standard AFM/NSOM (near-field scanning optical microscopy) systems from Nanonics Imaging (Jerusalem, Israel).

SensIR Technologies  
(www.sensir.com)  
— TravelIR portable FT-IR gas analyzer: Detects and monitors trace gases and vapors.  
— IlluminatIR accessory: Allows a light microscope to employ molecular analysis to function as an integral infrared microprobe.
Shimadzu Scientific Instruments
(www.ssi.shimadzu.com)
— FTIR Prestige: System is designed for maximum-sensitivity applications including thin-layer analysis and has a signal-to-noise ratio of 40,000:1.

Spectral Dimensions
(www.chemicalimaging.com)
— Chimera 1.7S: NIR chemical imaging system permits rapid analysis of moving and static samples of materials with heterogeneous composition.
— ISys chemical imaging software, version 2.3: Acquires spectral hypercube files and enables them to be treated arithmetically.

SpectraProbe
(www.spectraprobe.com)
— SpectraProbe Linx: Mid-infrared in-line detection system analyzes organic chemical species on-line in real time.

Thermo Nicolet
(www.thermonicolet.com)
— Raman analysis system: Automates high-throughput screening of drug polymorphs and combinatorial chemistry beads.
— IR100 FT-IR spectrometer: Small, lightweight system is designed for teaching and routine testing needs.
— Transport Kit FT-IR spectrometer: Compact, battery-powered unit is designed for mobile laboratories in the fields of hazardous materials, forensics, and law enforcement.
— ImageMax FT-IR spectral imaging system: Determines chemical heterogeneity information from a microscopic or macroscopic sample.
— MultiPro Autosampler: For use with the company’s Antaris FT-NIR analyzer, device is designed for in-process and prepackaging testing of pharmaceuticals.
— Performer: Single-reflection horizontal attenuated total reflection (HATR) accessory can be integrated with a variety of spectrometer systems.

Wilks Enterprise
www.wilksir.com
— Infracal Filtometer, Model CH-2: Designed for direct thickness measurements of the nylon layer in plastic films as thin as 0.01 mil.
— Mid-infrared ATR In-Line sensors: Self-contained IR absorption sensors that consist of an IR radiation source, single or dual pyroelectric detector with appropriate filter window to isolate a specific wavelength, a thermistor to measure temperature, and an optical ATR element.

UV, UV/Vis, UV/Vis–NIR, and Colorimetry Systems

Beckman Coulter
(www.beckmancoulter.com)
— DU 800 spectrophotometer: Uses Windows-based PC software control and microfocused beam technology to measure microvolume samples in DNA, protein, and enzyme mechanism applications.

Biochrom
(www.biochrom.co.uk)
— Libra spectrophotometers: Family of six visible and UV/Vis systems includes the S11 and S12 for routine quality control and teaching and the S32PC model for PC-controlled, Pharmacopoeia-compliant instrument performance validation.

Optometrics
(www.optometrics.com)
— Modular Recording Spectrophotometer: Vis–NIR system is designed for use in education and research.

Shimadzu Scientific Instruments
(www.ssi.shimadzu.com)
— BioMini UV/Vis spectrophotometer: Dedicated to bioscience applications, system offers nucleic acid analysis, protein quantitation, and spectrum measurement.
— PharmaSpec UV/Vis spectrophotometer: Complies with all major international Pharmacopoeia specifications.
— Dispersive fiber-optic coupler system: For use with the company’s UV-2401 and UV-2501 spectrophotometers.

Surface Optics
(www.surfaceoptics.com)
— VP-Sphere accessory: Designed for use with standard benchtop FT-IR systems for detection of nonvolatile residues in solvents and hydrocarbon analysis.
— SOC-700 Visible Spectral Imaging system: Reportedly can acquire and process as many as 100 lines/s of 640 pixels-per-line spectral data containing 120 spectral bands.
— High-speed FT-IR imaging system: Full-frame, rapid-scan imaging FT-IR system works with a $128 \times 128$ MCT focal plane array.

Techne
(www.techneusa.com)
— Jenway UV/Vis spectrometers: Family of systems offers a variety of models, from low-cost educational instruments to full-featured research units and pre-programmed life science units.
Thermo Labsystems
(www.thermolabsystems.fi)
— Multiskan spectrum microplate spectrophotometer: Combines standard UV/Vis cuvette reading capabilities and the company’s Microtiter plate reading in a compact unit.

Thermo Spectronic
(www.thermospectronic.com)
— Genesys 6 scanning spectrophotometer: Contains built-in programs to run standard curve, absorbance ratio, absorbance difference, scanning, kinetics, and multiwavelength applications.

United Products & Instruments
(www.unico1.com)
— Spectro-Quest UV/Vis scanning spectrophotometers: Offers programs including Abs/% T/Conc. Kinetics, standard curve, absorbance ratio, multiple components, as well as user-defined tests. Storage capacity for as many as 500 sample test results.

Varian
(www.varianinc.com)
— UV/Vis–NIR spectrophotometers: Cary 4000/5000/6000i and Deep UV family of research-grade instruments is targeted for use in optics, pharmaceuticals, materials science, and general chemical analysis.
— VanKel (VK) 7020 dissolution tester: For pharmaceutical analysis, model determines the rate at which active ingredients in a dosage form become bioavailable. It can be integrated with other life sciences instrumentation developed by the company, including UV/Vis spectrophotometers.

Fluorescence and Related Techniques
Jobin Yvon,
Spex Fluorescence Service
(www.jyhoriba.com)
— Micromax 384 accessory: Used with the company’s Fluoromax and Fluorolog series spectrofluorometer systems, it measures fluorescence in 384- and 96-well plates.
— SLM spectrofluorometer upgrades: Spex SpectrAcq electronics replaces original TCM module for better performance and smaller unit size. The upgrade also includes GRAMS data processing and display software (Thermo Galactic, Salem, NH).

Ocean Optics
(www.oceanoptics.com)
— Bacterial endospore screening system: Field-deployable, miniature detection system offers front-end screening to instantly indicate presence of Bacillus and Clostridium endospores, including Bacillus anthracis (anthrax).
— Optrodes for pH analysis: Fluorescence-based optical sensors analyze pH in aqueous solutions. Various-sized models are designed for in vivo procedures and for measuring small-volume samples.

PerkinElmer Life Sciences
(www.perkinelmer.com/lifesciences)
— Kodak Image Station 1000: For high-performance imaging of chemiluminescent, fluorescent, and chromogenic labels.

Photon Technology International
(www.pti-nj.com)
— BryteBox fluorescence interface: New interface in company’s fluorescence products allows users to perform data acquisition through their own PC workstations or laptops via an Ethernet link.

Nuclear Magnetic Resonance and Related Techniques
Bruker BioSpin
(www.bruker-biospin.com)
— Avance ICE biological NMR system: The Integrated CryoProbe-Enabled (ICE) system is designed for biomolecular research and drug discovery, particularly in structural and functional proteomics, and systems biology.
— CryoFlowProbe cryogenically cooled flow-injection NMR probe: For techniques such as LC–NMR, LC–solid-phase extraction–NMR, and high-throughput NMR screening.
— Capillary LC–NMR system: Extends the range of LC–NMR to sample-limited applications allowing for low nanogram detection.

Bruker minispec
(www.minispec.com)
— minispec magnetic resonance analyzer: Measures fat, fluid, and lean tissue in live mice for use by medical and pharmaceutical companies doing drug discovery and obesity research.
— Mqμwave benchtop NMR system: For measuring fat/oil and moisture/solids in wet foods such as dairy products.
— minispec Professional Mouse: Hand-held NMR device is designed for medical science and materials science, particularly rubber and polymer research, design, and production.

CEM
(www.cem.com)
— Smart System®: Provides automated moisture–solids analysis for process and quality control as well as testing of raw materials and intermediate and finished products.
— Smart Trac System: Partners NMR technology with the company’s Smart System® analytical software for fat and moisture analysis without solvents or calibration.
MASS SPECTROMETRY
Mass Spectrometry Systems, Accessories, and Software
Advion Biosciences (www.advion.com)
— NanoMate 100 nanoelectrospray mass spectrometry system: Provides high-throughput sample analysis for proteomics, drug metabolism pharmacokinetics, flow injection analysis, and quality control studies.

Bruker Daltonics (www.bdal.com)
— Ultraflex MALDI-TOF system: Designed for proteomics and other applications.
— Apex IV ESI-FT-MS system: Designed for ultrahigh-resolution applications such as metabolomics, combinatorial library analysis, and natural products elucidation.
— omniflex IT MALDI-TOF system: Designed for mass measurement of biomolecules in clinical and diagnostic research and other biological applications.
— GenoLink SNP genotyping module: Semiautomated MALDI-TOF system for use in functional genomics research into the correlation between genes, genetic variation, and proteomic expression.
— Atmospheric-pressure MALDI accessory: Adds MALDI capabilities to company’s research-grade esquire3000-plus ion-trap and BioTOF Q-q-TOF systems.
— ProteinScape software upgrade: Supports company’s Proteineer proteomics system.
— biotools version 2.1 software: For protein data interpretation in mass spectrometry–based protein analysis.
— HyStar version 2.2 software: For chromatography and hyphenated experiments, it supports LC-MS setups of various company systems.

Burle (www.burle.com)
— Bipolar time-of-flight detector: 25-mm diameter detector is targeted for mass spectrometry applications.

Del Power Conversion Group (www.delpower.com)
— Series AR custom high-voltage power supplies: Designed for MS and other OEM applications requiring automatic polarity reversal.

Elementar (www.elementar.de)
— Vario EL IR-MS: Accommodates large-size heterogenous samples in a system combining elemental analysis and isotope ratio mass spectrometry.

Gerstel (www.gerstelus.com)
— Thermal desorption unit and automation accessory: For use with the company’s Twister magnetic stir bars to analyze trace organics using GC-MS.
— ChemSensor 4440: Based on MS or optional GC-MS, the chemical sensor system is designed for quality control applications in areas including foods, flavors, and polymers.

Horiba Instruments (www.neptune.net/horiba)
— TPDRO 1100/MS: Mass spectrometer addition to the chemisorption analyzer provides characterization of catalysts.

INFICON (www.inficon.com)
— Hapsite field portable GC-MS: Design improvements allow for detection, identification, and quantitation of many volatile organic compounds at parts-per-trillion levels during field operation.

JEOL USA (www.jeol.com)
— AccuTOF time-of-flight LC-MS: Allows analysis of low and high concentrations in obtaining accurate mass measurements.

LECO (www.leco.com)
— Pegasus 4D GC–TOF-MS analyzer:
Windows-based system allows for complete data processing, ranging from qualitative characterization of complex mixtures to identification and quantification of specific target analytes.

**Micromass**
(www.micromass.co.uk)
— ProteinLynx Global Server 2.0: Integrated platform is designed to help manage workflow and visualize proteomics research.

**SETARAM**
(www.setaram.com)
— SuperSonic System for TG-MS: Device is designed to improve high-temperature thermobalance–mass spectrometry measurements of all types of materials including inorganic samples.

**Shimadzu Scientific Instruments**
(www.ssi.shimadzu.com)
— GCMS-QP2010: Analyzer offers scan sensitivity of > 60/1 for 1 pg of octafluoronaphthalene and acquisition speeds to 50 scans/s.

**Thermo Finnigan**
(www.thermofinnigan.com)
— Surveyor MSQ: Single-quadrupole, atmospheric pressure ionization mass spectrometer is 12 in. wide and can integrate with the company’s Surveyor LC system for LC-MS analysis.
— Trace MS Plus: System incorporates improved electronics and an intuitive user interface.
— Tempus time-of-flight MS: GC-MS system is now equipped for chemical ionization.
— UltraFast Trace GC: Direct column heating decreases sample run times, and increased sensitivity allows analysis of compounds at trace levels.

**Syagen Technology**
(www.syagen.com)
— PhotoMate Atmospheric Pressure Photoionization (APPI) source: Now available integrated into LCQ Deca XP, Advantage, and TSQ Quantum LC-MS product lines from Thermo Finnigan (San Jose, CA) for use in a range of applications.

**Varian**
(www.varianinc.com)
— Vaclon Plus vacuum pumps: Designed for mass spectrometers, electron microscopes, and other analytical instruments requiring ultrahigh vacuum.
— CT-100 vacuum gauge: Active thermal conductivity vacuum gauge is designed to be an economical option for most vacuum needs in analytical instruments and many industrial applications.
— Navigator Turbo-V 301: Family of turbomolecular pumps is designed for demanding analytical instruments including mass spectrometers, electron microscopes, and surface analysis systems.
— Model 1200L LC-MS: Available as a triple-quadrupole MS or upgradable single-quadrupole MS, system can be configured to meet unique user requirements and is switchable between LC-MS and GC-MS.

**GENERAL**

**Electro-Optics Components/OEM**

**Acton Research**
(www.acton-research.com)
— InSpectrum spectrometer: Integrated spectrometer—CCD will map to many research, laboratory, OEM, and industrial applications requiring a compact and rugged system.

**Burle Electro-Optics**
(www.burle.com)
— Electron Generator Array (EGA): Cold electron source is applicable for mass spectroscopy, fluorescent display screens, electron scrub sources, sample discharge for scanning electron microscopes, and other systems.

**Control Development**
(www.controldevelopment.com)
— InGaAs array spectrograph: Near-infrared system is portable, miniature, and fiber-optic–input based.

**Jobin Yvon,**
**Optical Spectroscopy Division**
(www.jyhoriba.com)
— IGA3000 NIR array series: Detectors feature spectroscopic-grade InGaAs linear arrays and are available in liquid nitrogen–cooled or Peltier cooling versions.
— Triax 322 and Triax 552 imaging spectrographs: Can be equipped with two array detectors and can switch between detectors without realignment.

**PerkinElmer Optoelectronics**
(www.perkinelmer.com/opto)
— FX-4400 HO bulb: For analytical applications requiring large-area illumination or simultaneous sample screening.
— Avalanche photodiode preamplifier modules: Detectors developed for uses including range finding, confocal microscopy, and LIDAR.
— Epitaxial silicon PIN photodiode: IR photodiode for range finding, IrDA and blood analysis applications.
— Epitaxial silicon Avalanche photodiode: For range finding and laser scanner instruments.
— AQ4C single-photon counting module: Provides single-molecule detection for high-throughput DNA sequencing, LIDAR, adaptive optics, and ultrasensitive fluorescence.
— L-series CMOS linear photodiode array: Sensor for applications such as visible spectroscopy and colorimetry.
— Astrocam cooled-CCD camera: For use in protein quantification, fluorescent microscopy, luminescence, and other areas.
— J-series cooled CCD sensor RA1133J: Designed for cooled spectroscopy, biomedical imaging, and related applications.
Research Awards

Several different awards were presented during PittCon 2002 in recognition of significant contributions made in the fields of analytical chemistry and spectroscopy.

- **Royce W. Murray**, Kenan professor of chemistry at the University of North Carolina (Chapel Hill), received the Pittsburgh Analytical Chemistry Award for 2002, sponsored by the Society for Analytical Chemists of Pittsburgh (Pittsburgh, PA). The award was given in honor of Murray’s contributions in the field of electroanalytical chemistry.

- **Alan G. Marshall**, Kasha professor of chemistry at Florida State University (Tallahassee), was presented with the 2002 Pittsburgh Spectroscopy Award by the Spectroscopy Society of Pittsburgh (Pittsburgh, PA) in recognition of his co-invention (with Melvin Comisarow) of the Fourier-transform ion cyclotron resonance mass spectrometry technique and other advancements.

- **Daniel M. Neumark**, professor of chemistry at the University of California (Berkeley) received the Bomem-Michelson Award from the Coblentz Society (Cumming, GA). Dedicated to the memory of Professor A.E. Michelson, and sponsored by Bomem (Quebec, Canada) and Hartman & Braun (Eschborn, Germany), the award was given in recognition of Neumark’s research interests in fundamental reaction dynamics, as well as transition state spectroscopy, cluster spectroscopy and dynamics, and the effects of solvation on chemical reactions.

- **Isao Noda** of Procter and Gamble (Cincinnati, OH) was presented with the Williams-Wright Award from the Coblentz Society. The award was given to Noda for his contribution in the development and application of dynamic infrared linear dichroism and two-dimensional correlation spectroscopy.

- **Christian Amatore**, director of the chemistry department at the Ecole Normale Superieure (Paris, France), received the Charles N. Reilley Award from the Society for Electroanalytical Chemistry (West Lafayette, IN). Amatore was honored for his research contributions to the theoretical aspects of electrochemistry and his leadership in the development of ultramicroelectrodes.

- **Andrew C. Hillier**, professor in the department of chemical engineering at the University of Virginia (Charlottesville), was presented with the Young Investigator Award from the Society for Electroanalytical Chemistry. Hillier was given the award in honor of his innovative research including the development of electrochemically switchable membrane materials.

- **Pierre Dardenne**, head of spectroscopy at the Agricultural Research Centre, University of Gembloux (Belgium), received the Tomas P. Hirschfeld Award, given by the International Committee for Near-Infrared Spectroscopy. The award was sponsored by Bran+Luebbe (Buffalo Grove, IL) and honors Dardenne for his work in applications of near-infrared spectroscopy for agricultural and agroindustrial products.

- **David Nelson** was honored with the first annual PittCon Heritage Award. The award was jointly sponsored by the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittsburgh, PA) and The Chemical Heritage Foundation (Philadelphia, PA) and was given to Nelson in recognition of his successful integration of automation and PC productivity into the field of chromatography, which promoted wider use of these tools for analytical studies in areas such as forensic science, pharmaceutical drug discovery, and environmental remediation. His work demonstrated that personal computers could be a key part of analytical chemistry.
RenCam CCD detector with USB connectivity: For Raman, photoluminescence, spectroscopy, and imaging applications.

— RL785 and RL830 lasers: Designed for portable and OEM laser-based Raman and photoluminescence spectroscopy systems.

Roper Scientific (www.roperscientific.com)

— Princeton Instruments Spec-10 detectors: CCD-based modules have been reengineered and now operate at speeds of 2 MHz and 50 kHz as well as 100 kHz and 1 MHz.
— Princeton Instruments PI•MAX:1K: Intensified CCD camera for high-resolution gated imaging and spectroscopy applications.
— TriplePro spectrographs: Instruments offer strong stray-light rejection and are designed for high-resolution applications in the 200–1100-nm range.

SPECTROsolutions (www.spectrosolutions.ch)

— SpectroInch’ short-wave NIR spectrometer module: Designed for use in portable devices, it covers the spectral range from 750 to 1080 nm.

Thermo Oriel (www.thermo-oriel.com)

— Hollow-metal retroreflectors: Available in a variety of return beam accuracies, sizes, shapes, reflective coatings, and mounts.

Supplies, Software, Accessories, Consumables, and Components

Aabspec (www.aabspec.com)

— #STP-6 temperature programmer: Software-based system is intended for use by research spectroscopists for high-precision and complex temperature programming.

Advanced Chemistry Development (www.acdlabs.com)

— ACD software, version 6.0: Upgraded analytical data management system provides tools for users at all levels of an organization.

ANDOR Technology (www.andor-tech.com)

— iKon large-area detectors: Detectors
A variety of new products were nominated for the annual PittCon Editors’ Awards. The awards were given based on an informal poll of the editors and journalists covering the trade show and were organized by Gordon Wilkinson, consultant editor for Instrumenta magazine.

- The joint winners of the Gold Award were Horiba/Jobin-Yvon (Edison, NJ) for its LabRam IR combined FT-IR and FT Raman spectrometer, and Thermo LabSystems (Cheshire, United Kingdom) for its eRecordManager knowledge management software.
- Ultrasonic Scientific (Dublin, Ireland) received the Silver Award for its HR-US 101 high-resolution ultrasonic spectrometer.
- JEOL (Peabody, MA) received the Bronze Award for its AccuTOF mass spectrometer.

Beckman Coulter (www.beckmancoulter.com)
- LIMS software upgrade: Includes enhancements to LabManager iLIMS product and the introduction of Polaris LIMS for smaller laboratories.

CequeLogic (www.elementdatasystem.com)
- Element Web LIMS: Windows-based software allows users to access the laboratory’s database to check the status of samples.

Bio-Rad Laboratories, Informatics Division (www.informatics.bio-rad.com)
- KnowItAll Informatics System, version 1.2: For use in cheminformatics and multiple analytical techniques, upgraded software and database system includes improved ReportIt report-generating feature; improved PredictIt plug-in for NMR prediction; and Browselt plug-in that provides tips, application notes, and a message board for users of the analytical software.
- Software developer’s kit: Plug-in feature for KnowItAll system has an open architecture that allows for the addition of new software from the company or third-party software developers.

ANDOR Technology iKon large-area detector
CEM
(www.cem.com)
— Mars-X microwave-assisted solvent-extraction system: Extracts as many as 14 samples in < 15 min and meets requirements of EPA Method 3546.
— Mars 5 microwave digestion system: Processes as many as 14 samples per run.
— Phoenix microwave-powered muffle furnaces: Offering the option of a high-temperature or high-capacity furnace, they are designed for use in the laboratory or process area.
— Star open-vessel sample preparation system: Features temperature feedback control, automated reagent addition, and the option to process as many as six samples using different programmable methods.

Creon•Lab•Control
(www.creonlabcontrol.com)
— Q-DIS/AM raw data archiving software: Web-based system facilitates sharing and collaboration on all types of data and is compliant with FDA 21 CFR Part 11.

EDAX
(www.edax.com)
— Genesis EDS microanalysis software, version 1.1: New features include live spectral mapping, drift corrections for mapping, and electronic signature module, including audit trails and authorization approvals.

Harrick Scientific
(www.harricksci.com)
— MVP Star diamond ATR accessory: 45° single-reflection accessory uses only aluminum reflecting optics. Spectral range is good through the far infrared.

Jasco
(www.jascoinc.com)
— 2-D Hetero correlation spectroscopy software: Two-dimensional correlation analysis of spectroscopic data is used to examine correlation tendencies between two spectral data sets.

Jobin Yvon,
Spex Fluorescence Service
(www.jyhoriba.com)
— Spex FluoroMax-3 spectrofluorometer: Now available with a pulsed-lamp phosphorimeter accessory.

K and M Electronics
(www.kandm.com)
— Microchannel Plates: Small-pore microchannel plates for time-of-flight mass spectrometry are now available with 18-mm and 25-mm active areas.

LabWare
(www.labware.com)
— LabWare LIMS, version 5.0: New features include electronic notebook forms, Public Key Infrastructure (PKI) and Digital certificates, and laboratory finance manager.

Milestone
(www.milestonesci.com)
— TraceClean system: An automated, closed acid reflux system for unat-
tended cleaning of Teflon, glass, and quartz ultratrace accessories.

**NuGenesis Technologies**  
(www.nugenesis.com)  
— Scientific Data Management System, version 5.2: Web-based platform provides immediate on-line access to data.

**Ocean Optics**  
(www.oceanoptics.com)  
— SAS-series OEM spectrometer modules: 39 mm × 46 mm devices provide full spectral analysis with optical resolution of approximately 2.0 nm (fwhm).

**PerkinElmer Instruments**  
(www.perkinelmer.com/instruments)  
— Labworks Enterprise LIMS, version 254: Software incorporates Windows-based technology, allowing the LIMS to operate more smoothly in a network environment and with other instruments.

**PerkinElmer Life Sciences**  
(www.perkinelmer.com/lifesciences)  
— Evolution P3 pipetting platform: Benchtop system for dispensing into 96-, 384-, and 1536-well microplates.  
— FlexDrop reagent dispenser: Stand-alone platform for assay development.

**PerkinElmer Optoelectronics**  
(www.perkinelmer.com/opto)  
— Astrocam: A cooled-CCD camera with a Kodak KAF1602 chip for applications including protein quantification, fluorescent microscopy, bioluminescence, and chemiluminescence.  
— RA1133J thermoelectrically cooled image sensor: With reset capabilities, device is designed for the spectroscopic, biomedical, and related scientific imaging applications.

**Point Source**  
(www.pointsourc.com)  
— iFlex-2000 fiber-coupled lasers: Latest addition to family of products is a 10-mW version of the 405-nm violet laser diode system, developed for materials processing and characterization applications requiring higher powers at 405 nm.

**Scientific Software**  
(www.scisw.com)  
— OpenLab Laboratory Integration Framework for the Enterprise (LIFE): Web-based hardware and software sys-
Customized organic reference standards: For use in a variety of analytical applications including GC-MS, FT-IR, and nuclear magnetic resonance.

Proficiency testing program: Partnering with Wibby Environmental (Golden, CO) and Protocol Analytical Supplies (Middlesex, NJ), the program offers proficiency testing standards for water supply, water pollution, soil/hazardous waste, and underground storage tank testing, as well as quality control standards.

Thermo ARL
(www.thermoarl.com)
— Assure multibase spectrometer: Desktop unit employs a solid-state charge-coupled device.

Thermo Galactic
(www.thermogalactic.com)
— QuickQuant: Software application designed for univariate analysis of spectral data.
— IQ Predict chemometrics prediction software: Can predict spectral data files against quantitative or qualitative models built using the company’s PLSplus/IQ chemometrics software.

Shimadzu Scientific Instruments
(www.ssi.shimadzu.com)
— Lab Solutions software, version 2: For GC-MS, upgraded system offers increased productivity and compliance with FDA 21 CFR Part 11 regulations.
— IR Solution software: For use with the company’s FTIR-8400 and FTIR-8900 spectrometers, it provides a range of FT-IR functions with Windows-based control.

Specac
(www.specac.com)
— Gateway ATR system: Horizontal attenuated total reflectance sampling accessory is interchangeable with other spectrometer benches and company accessories.

SPEX CertiPrep
(www.spexcsp.com)
— Microbiological standards: Additions to company’s certified reference materials product line include fecal and total coliform test kits.
— Customized organic reference standards: For use in a variety of analytical applications including GC-MS, FT-IR, and nuclear magnetic resonance.
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— IQ Predict chemometrics prediction software: Can predict spectral data files against quantitative or qualitative models built using the company’s PLSplus/IQ chemometrics software.

Reference Materials Newsletter and Survey

RM report (RMR), a newsletter produced for people involved with reference materials and proficiency testing, was launched at PittCon 2002. RMR includes news, product information, and background information from reference materials and proficiency testing sources, including the producers, users, instrument makers, professional associations, international authorities, and accreditation bodies. Subscribers gain access to dedicated pages on the newsletter’s web site, www.rmreport.com, with copies of back issues, a searchable cumulative database of references, a discussion forum, and an advice service. The newsletter is published by IM Publications and is scheduled for publication six times a year (five issues in 2002). For more information on the RM report, contact Ian Michael, publisher, IM Publications, 6 Charlton Mill, Charlton, Chichester, West Sussex PO18 0HY, United Kingdom, +44 1243 811 334, e-mail: im@impub.co.uk or Peter Jenks, editor, +44 1722 710 311, e-mail: editor@rmreport.com, web site: www.rmreport.com.

The Jenks’ Partnership (Alderbury, Wiltshire, UK) has been commissioned to undertake an in-depth survey of instrument suppliers, analytical laboratories, and others involved with reference materials. The survey will gather data about the day-to-day use of reference materials and testing schemes and the accuracy of analytical measurements.

Approximately 20,000 questionnaires are being distributed in the United Kingdom, Germany, France, Scandinavia, Belgium, Luxembourg, The Netherlands, and North America this year. Analytical chemists who would like to be included can download the survey form at www.rmreport.com/survey.html.
— GRAMS/AI, version 7.0: Upgraded software helps laboratories achieve compliance with FDA 21 CFR Part 11.

Thermo LabSystems

(www.thermolabsystems.com)
— eRecordManager software: Designed to meet requirements for securely storing spectral and chromatographic data from multiple data formats.
— SampleManager LIMS active desktop user interface: Software upgrade provides graphical image interface for enhanced system user-friendliness.
— SM-PI software interface: Connects the company’s SampleManager LIMS with PI System plant information software from OSIsoft (San Leandro, CA) to facilitate delivery of data for monitoring purposes and to ensure process integrity.

Ultrasound Scientific

(www.ultrasonic-scientific.com)
— HR-US high-resolution ultrasonic detector: For nondestructive analysis of liquids and complex colloids for scientists currently using FT-IR, UV/Vis, thermal analysis, rheology, particle analysis, NMR spectrometry, or other material characterization techniques.

Upchurch Scientific

(www.upchurch.com)
— Conductive perfluoroelastomer ferrule: Created from a material blend that enables the ferrule to conduct an electrical charge.
— NanoPorts connectors: Designed to facilitate chip-based analyses, they allow 75–800-μm o.d. tubing to connect with microchips.
— NanoMixer: Mixes two 360-μm o.d. capillary tubing flow streams. Flow path volumes as low as 30 nL and a metal-free pathway reportedly provide adequate gradient or postcolumn mixing without significant delay.
— Capillary sample trap columns: For preconcentrating low-level samples or chemically “scrubbing” low-concentration samples of impurities prior to injection.
— NanoPeak 10-port valve: Pre-mounted on an electronic actuator, it operates at pressures of 2500 psi.