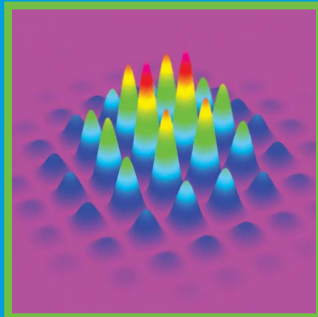
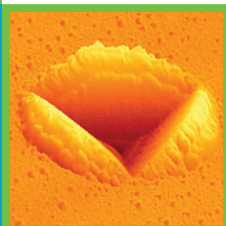




APS 2005 March Meeting



March 21–25
Los Angeles, California
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#304

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novel surface cleaning process that can remove particles of all sizes and also organic residues from surfaces. This cleaning process works well for cleaning substrates, vacuum parts, analytical samples (AFM), optics, and many other applications. The Snow Jet process is, nondestructively, residue-free with no environmental limitations. Bring test samples!

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Provides broadband, narrowband and pulse RF amplifiers and OEM products. Our Vision series provides simple to use building blocks or purchase a complete system. Intended for a wide range of applications with frequency levels to 4.2 GHz and power levels from 1 watt to many kilowatts.

ASYLUM RESEARCH #319

Featured is the MFP-3D AFM with unprecedented precision and accuracy with sensed closed loop operation in all three axes. The system features MicroAngelo powerful nanolithography and manipulation without added hardware, advanced programming capabilities using IGOR Pro interface, and top and bottom view optical access. New enhancements include Argyle 3D Open GL rendering capabilities, conductive AFM measurement capabilities, and motorized X,Y and Z.

ATOMATE CORPORATION #412

Develops robust systems, components, and materials optimized for the synthesis of nanowires and nanotubes using the chemical vapor deposition (CVD) method. Atomate has a solution for researchers who desire enhancements to existing systems and for those who want to build or buy a new system. Atomate's mission is to develop products that enable the customer to focus their efforts on the science, not on engineering of equipment.

ATTOCUBE SYSTEMS AG #313

Manufactures and distributes a complete line of easy-to-use scanning probe microscopes and nanopositioning systems for temperatures in the range from 300K down to 10mK! The innovative nanopositioners are also compatible with HV and UHV environments as well as with high magnetic fields up to 15T.

BLAKE INDUSTRIES #518

Will be exhibiting our line of x-ray and synchrotron instruments and accessories, including rotary tables, goniometers, translation stages and Eulerian Cradles.

BRUKER BIOSPIN / EPR DIVISION #1019

Highlighting the ELEXSYS line of EPR spectrometers featuring Linux workstations and advanced electronics for L-, S-, X-, K-, Q-, and W-Band operation with both conventional and superconducting magnets. Complementing the EMX Series, the ELEXSYS spectrometers provide the ultimate in SW, Pulse-FT-EPR, CW and Pulse ENDOR/Triples instrumentation. The ELEXSYS line offers cryostats and accessories for a wide range of applications and meets the most demanding needs of the EPR community.

CAMBRIDGE MAGNETIC REFRIGERATION #1114

Will be displaying its mFridge range of general purpose demagnetization refrigerators for hassle free cooling to as low as 30mK. You will be able to talk to our scientists about how ADR technology can benefit your work and discover the full temperature range and convenience of the modular and reliable

mFridge family. CMR - Setting new standards in cooling technology.

CAMBRIDGE UNIVERSITY PRESS #419

Stop by to receive a 20% discount on the latest in Physics, including Principles of Lasers and Optics by William Chang; *A First Course in String Theory* by Barton Zwiebach; *Introductory Quantum Optics* by Chris Kerry and Peter Knight; and *Quantum Finance* by Belal Baaquie.

CERAMTEC NORTH AMERICA #1000

A world leader in ultra-high vacuum seal technologies. Designs and manufactures ceramic-to-metal and glass-ceramic hermetic electrical & optical components under the Ceramaseal® trade name. These products include: feedthroughs, multipin connectors, coaxial connectors, thermocouples, viewports, isolators and assemblies. Products include both standard and custom designs for use in vacuum, ultra-high vacuum, high-pressure, cryogenic and high-temperature applications.

CRYO INDUSTRIES OF AMERICA #406

Check out our production model helium-3, perfect for tight budgets. The popular SM6 magneto-optical magnet systems now ships standard with HTS (High Temperature Superconductor) current leads. We have closed cycle, storage dewar mount, variable temperature inserts with vapor shields, atomic force microscopes, no move optical microscopy cryostats and more!

CRYOGENIC CONTROL SYSTEMS #315

A manufacturer of precision electronic instrumentation for both laboratory and industrial process control applications. Cryo-con's state of the art cryogenic temperature controllers, apply the latest technology available to attain unsurpassed measurement accuracy and control stability. Cryo-con will be featuring the Model 12 and Model 14 temperature monitors. The monitors incorporate the most recent technology upgrades available in the instrumentation industry.

CRYOMAGNETICS #906

Offers a complete superconducting magnet system, related electronic instrumentation, and cryogenic accessory line. New electronics include CE-Marked integrated superconducting magnet power supplies. Our cryogen-free superconducting magnet lineup now includes a 7T high homogeneity, actively-shielded system. A 3.6T, cryogen free, high temperature superconducting magnet system for gyrotron use has been successfully tested. Cryomagnetix is committed to staying at the forefront of superconducting magnet technology and welcomes the opportunity to discuss your requirements.

CRYOMECH #606

Manufactures cryorefrigerators, cryostats and liquid nitrogen plants. All of Cryomech's products are based on the Pulse Tube and Gifford-McMahon Cycle Cryorefrigerators that we manufacture. For Superconductivity applications we have several options at 4K, 20-30K and 77K. At 4K, all of our models are pulse tube Cryocoolers with the added benefits of low vibrations and high reliability. For 20-30K and 77K, we manufacture a full line of single-stage Gifford-McMahon Cycle Cryocoolers with up to 40 watts @ 20K, 100 watts @ 30K and 300 watts @ 77K. New products include: PT403, 0.25 watt @ 4.2K, and Remote Motor Options for all of the

PTRs for low electrical interference.

EDP SCIENCES #1111

The main objective of EDP Sciences is the communication of high-level scientific knowledge. The company publishes journals and books in astronomy, astrophysics, life sciences, chemistry, computer sciences, electricity and electronics, mathematics

J.A. WOOLLAM #205
Spectroscopic ellipsometers (in situ and ex situ) for non-destructive materials analysis: multi-layer thicknesses, optical constants, growth and etch rates, composition, and more. Offering spectroscopic ellipsometers covering spectral ranges from the Vacuum ultra-violet (VUV) to the Far infrared (IR) to meet most all optical characterization needs.

JANIS RESEARCH CO. #300
Recipient of NASA achievement awards (1996 & 2000), R&D-100 award (1998), offers a complete line of standard and customized cryogenic systems. These include dilution refrigerators (10mK), ADRs (50mK), He-3 & He-4 superconducting magnet systems (0.3K & 6-17T), cryocoolers (3K-800K), VT cryostats (2K-800K), noble gas cold traps, micromanipulated probe stations, and more.

JOHN WILEY & SONS #318
Founded in 1807, an independent, global publisher of print and electronic products. Wiley specializes in scientific and technical books, journals, textbooks and education materials for colleges and universities, and professional and consumer books and subscription services.

KEITHLEY INSTRUMENTS #400
Experts will be on hand to discuss your measurement needs and challenges, and to demonstrate the company's materials research solutions for nanotechnology, superconductivity, ferroelectrics, and ceramics. These include Keithley's new Model 6220 DC Current Source and Model 6221 AC and DC Current Source, which offer unprecedented capabilities, such as pulsed and arbitrary waveform current sourcing. When coupled with Keithley's new Model 2182A Nanovoltmeter, these sources dramatically simplify making differential conductance, delta mode resistance, and pulsed I-V measurements. Keithley experts will also be demonstrating cost-effective electrometers, picoammeters, and semiconductor characterization tools designed for measuring very small values of voltage, resistance, and current.

KIMBALL PHYSICS #404
UHV electron guns and ion guns: beam energies 1eV to 100keV. cathodes, cathode cartridges, filaments; Faraday cups, phosphor screens. System options: energy sweeping, rastering, fast pulsing, emission current stabilization, labview control. UHV components: Multi-CF Fittings, vacuum chambers, eV Parts. Applications: surface physics, vacuum physics, space physics, charge neutralization, cathodoluminescence, phosphor testing, semiconductor processing, RHEED, ESD. Custom designs.

KLA TENCOR #210

KURT J. LESKER CO. #601
Manufacturer and distributor of the most comprehensive vacuum equipment product range including standard & custom vacuum chambers. Thin-film deposition systems (PVD-75, AXXIS, CMS-18) for R&D and pre-production using sputtering, MOCVD, ion assisted deposition, e-beam and thermal evaporation deposition techniques for all film materials: organics (OLED/PLED), magnetics (GMR), ceramics (high Tc superconductivity), and metals (reflectors, metallizing).

LAKE SHORE CRYOTRONICS #605
With over 35 years of experience, Lake Shore offers the most comprehensive line of

cryogenic measurement instrumentation and sensors available. Temperatures down to 20 mK can be measured and controlled with our controllers, monitors, transmitters, and AC resistance bridge. Temperature sensors include diodes, PTC RTDs, and NTC RTDs. Calibrations from 50 mK to 800 K can be provided. Other products include a superconducting magnet power supply, a full line of magnetic measurement instrumentation, Hall probes and field sensors, Helmholtz coils, electromagnets, magnet power supplies, VSM systems, Hall effect measurement systems, and probe stations. Our knowledgeable staff will be on hand to discuss your research requirements.

MACKICHAN SOFTWARE #1106
Scientific WorkPlace and Scientific Word make writing, sharing, and doing mathematics easier. A click of a button allows you to typeset your documents in LaTeX. And, with Scientific WorkPlace, you can compute and plot solutions with the integrated computer algebra engine, MuPAD 2.5.

MAD CITY LABS #600
Manufactures high speed, high precision nanopositioning systems with integrated position sensors and closed loop feedback control for applications that require nanometer precision. Our products include single and multi-axis systems with ranges of motion up to 200 microns, better than 0.05% linearity, sub nanometer precision and innovative design. We are committed to offering high quality products with a superior level of customer service.

MANTIS DEPOSITION #415
Dedicated to the manufacture of high quality UHV deposition components for research-scale studies in MBE, surface science or PVD. Product offerings include: nanocluster deposition sources and systems, RF atom and RF ion sources, e-beam evaporators, k-cells and thermal gas crackers.

MINUS K TECHNOLOGY #704
Manufactures vibration isolation products ideal for SPMs, Micro-hardness testers, laser and optical systems. They are easy to use, require no air, can be vacuum compatible and non-magnetic. The proven BM-4 bench top platform, with guaranteed 0.5-Hz natural frequencies, performs 10 times better than air isolators, and has comparable prices. A new low height platform will also be introduced.

MOLECULAR IMAGING #1118
On display will be the PicoPlus® SPM that offers a comprehensive suite of imaging and data collection modes including the patented PicoTREC for single molecule microscopy and operates to atomic scale on inverted light microscopes. Imaging modes include: contact, acoustic mode, patented MAC mode for soft samples in fluid, LFM, CSAFM, Pulsed Force, Force/Distance, Magnetic Force, and STM.

MOLECULAR METROLOGY #807
An established leader in the design and manufacture of Small Angle X-ray Scattering (SAXS) and Ultra-SAXS instrumentation for nanostructure determination from 1 nm to 3 microns. We offer complete, turn-key systems with a range of Rigaku high brilliance x-ray sources and a selection of 2D area and 1D linear position sensitive detectors.

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NANONICS IMAGING LTD. #907
Ultimate resolution AFM/NSOM/SPM systems including the first two probe SPM system. Hallmarked by free optical and electron/ion beam axis integration including confocal, microRaman, SEM's, TEM's, FIB's, 10 K operation. Exposed AFM probes/tips surpassing nanotube profiling with deep trench capabilities, multiwire electrical, Nanoheater(tm) thermal conductivity, electrochemical, AFM controlled gas & liquid nanochemical deposition.

NANOSCIENCE INSTRUMENTS #312
Nanoscience Instruments provides a wide range of scanning probe microscope products for research, industry and education. The easy-to-use Nanosurf Mobile S

Memberships will be available at the NSSA booth.

NOR-CAL PRODUCTS #201
Manufacturer of high vacuum components since 1962. Standard components: flanges, fittings, viewports, feedthroughs and flex-hose; isolation and pressure control valves; thermal products; molecular sieve, particulate and cold traps; thin film components; pressure gauges and manipulators. Custom components: chambers, traps, manifolds, collars and baseplates from customer specifications. 3D Model Library available on-line.

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OMICRON NANOTECHNOLOGY USA #302
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Manufacturer of growth and processing equipment for semiconductor or thin film research. Products include RF atom sources for high quality oxide/nitride growth, a full range of RF and DC broad-beam ion sources for sputter-deposition or ion-beam assisted deposition, mini e-beam evaporators, thermal gas crackers and nanocluster deposition sources and systems

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Stop by our booth and receive a 20% discount on all titles. Oxford is pleased to announce: J. Orton: *The Story of Semiconductors*, H. Bruus, K. Flensberg: *Many-Body Quantum Theory in Condensed Matter Physics*, X.G. Wen: *Quantum Field Theory of Many Body Systems*, N. Brilliantov, T. Poeschel: *Kinetic Theory of Granular Gases*, E. Zeidler (Ed): *Oxford Users' Guide to Mathematics* and R. Welberry: *Diffuse X-ray Scattering and Models of Disorder!*

PERSEUS BOOKS GROUP #1113
Our list includes The Advanced Books Program of physics and mathematics titles in the *Frontiers in Physics*, *Advanced Books Classics*, and *Studies in Nonlinearity* series. We proudly publish a number of renowned authors. New this year are Robert Laughlin's *A Different Universe* and a collection of Richard Feynman's letters titled *Perfectly Reasonable Deviations* from the Beaten Track.

PHOTONICS SPECTRA #215
Biophotonics International magazine is designed for people who are using photonic technology in medical or biotechnical products and procedures, and for key researchers who are looking for new techniques and products to solve their problems. It is distributed free to those who use or apply photonics.

PHYSICS ACADEMIC SOFTWARE #1107
Publishes software in cooperation with AIP, APS, and AAPT. For more than a decade, PAS has been the cornerstone of educational physics courseware. Our programs are peer reviewed and teacher tested, and we guarantee excellent performance in the classroom and laboratory. Packages include detailed documentation for users and instructors.

PHYSICS TODAY Exhibitor Lounge
Physics Today is known worldwide as the preeminent physics magazine. Stop by and pick up your free sample along with the annual Buyer's Guide while supplies last.

PRINCETON UNIVERSITY PRESS #320
This year, we published Volume 9 (*The Berlin Years: Correspondence*, January 1919-April 1920) of the *Collected Papers of Albert Einstein* and brought out new editions of Einstein's *The Meaning of Relativity* (w/ a new introduction by Brian Greene), Einstein's *Miraculous Year* (John Stachel, ed.), and *The New Quotable Einstein* (Alice Calaprice, ed.). More new books include Tony Zee's *Quantum Field Theory in a Nutshell*, GianCarlo Ghirardi's *Sneaking a Look at God's Cards: Unraveling the Mysteries of Quantum Mechanics*, Robert Stengel's *Flight Dynamics*, Wenceslao Gonzalez-Vinas and Hector Mancini's *An Introduction to Materials Science*, Roland Omnès *Converging Realities*, Charles Coulston Gillispie's *Science & Polity in France: The End of the Old Regime*, Giuliano Pancaldi's *Volta*, and Gérard Liger-Belair's, *Uncorked: The Science of Champagne*.

PSIA #805
Provides a complete SPM and AFM product line for academic and industrial research needs. The XE-Series AFMs provide the most accurate data, while also being designed with a focus on ease-of-use, versatility, and durability. A full range of platforms and options makes the XE-Series well suited for research in materials, polymers, semiconductors, nanotechnology, the life sciences, and more.

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Physical Property Measurement System (PPMS) is an innovative device designed to provide a wide range of fully automated measurements, including: magnetometry (AC, DC, Torque, and VSM), electrical transport (AC, DC, Hall effect and critical current), thermal transport (thermal conductivity, Seebeck coefficient, thermopower), and heat capacity. Both systems can be supplied with an optional cryocooled liquid helium dewar, virtually eliminating helium transfers.

RHK TECHNOLOGY #705
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Featuring the recently introduced Model 9700 Cryogenic Temperature Controller. This dual channel controller offers signal conditioning for all DC, AC & Thermocouple type sensors utilizing (2) 24 Bit A/D Converters. Standard features include IEEE-488, RS232, and a programmable/scalable analog output. Information on the cryogenic temperature instrumentation and temperature sensor products manufactured by SI will also be highlighted.

SIGNAL RECOVERY #806
Will be exhibiting items from their range of lock-in amplifiers, signal averagers, delay generators, preamps and optical choppers. Products on show include the model 7210, a 32-channel DSP lock-in, and updated

ment, Analytical and Vacuum Instruments. Products to be exhibited include Small Instrumentation Module (SIM) product line with modules for low temperature measurement, analog PID control and other applications, Lock-in Amplifiers, Delay Generators, Photon Counters, Preamplifiers, FFT Analyzers, RGAs, Melting Point System and others.

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Tristan is the world's leading supplier of custom SQUID magnetometers. Tristan will exhibit its iMAG® line of SQUID instrumentation including both LTS and HTS SQUID sensors and a wide variety of non-magnetic dewars for both helium and nitrogen use. Information on Tristan's line of measurement systems for laboratory, biomagnetic, geophysical and non-destructive test and evaluation will also be available.

UNIVERSITY SCIENCE BOOKS #321
VAT #410
An industry leader in vacuum sealing technology, manufactures high quality vacuum valves for a variety of applications ranging from rough to extreme UHV. Products include: gate, angle, fast-closing, throttle, pressure control, all-metal and customized valves. Visit www.vatvalve.com to learn more about VAT products, news and capabilities.

VEECO INSTRUMENTS #510
Exhibiting the Dimension XYZ Hybrid Scanner the most versatile AFM system to meet the highest resolution and repeatability needs of researchers today; the NanoMan system, well-known for direct nanoscale manipulation and high-definition nanolithography; the EnviroScope with environmental controls for fluid, gas, vacuum, and temperature; and the low cost CP-II SPM with new thermal accessory.

VERICOLD TECHNOLOGIES #418
Specializes in low temperature cooling equipment as well as superconducting X-ray spectrometers. Products include low vibration 70 K and 4 K pulse tube coolers, Adiabatic Demagnetisation Refrigerators (ADR) and 3 He/4 He dilution refrigerators. Thor-

oughly competent in cryogenic engineering as well as customized adaptations.

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Manufacturer of modular, high resolution optical and scanning probe microscopes. WITec supplies the AlphaSNOM, using unique cantilever NSOM sensors, the confocal Raman microscope CRM 200 for Raman imaging with highest resolution and the Mercury 100 AFM with the integrated Digital Pulsed Force Mode for materials research and nanotechnology.

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Wolfram Research is one of the world's leading developers of technical computing software, offering organization-wide computing solutions. Led by *Mathematica*, its flagship product, the company's software is relied on today by millions of users worldwide and has been the recipient of many industry awards for technical excellence. Visit www.wolfram.com for more information.

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