

AVS 2007 Exhibitor Program

October 14-19, 2007 • WA State Convention Center • Seattle, WA

Free Exhibit Attendance

For more information, visit our website at
www.avs.org

• Magnetic Interfaces & Nanostructures • MEMS and NEMS • Manufacturing Science & Technology • Vacuum Technology •

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A&N Corporation, manufacturer of high vacuum components for over 40 years, offers researchers and laboratories an extensive line of standard high and ultra high vacuum components, as well as custom valves and process chambers. A&N products are designed to meet or exceed the standards required by industrial and academic users, such as those involved with thin film disposition, surface analysis, laser devices, cryogenics and the aerospace industry. For more information, visit us at www.ancorp.com.

Able Electropolishing #109
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Our unique process dissolves surface metal and with it, microscopic burrs, recast material and other surface contamination. The process works on nearly any shaped metal. Laser, EDM and photofabricated parts in nearly any size. World's largest capacity. In-house Scanning Electron Microscope. Two locations to serve the US and the world. Able Electropolishing 888-868-2900

Accu-Glass Products Inc. #210
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www.accuglassproducts.com

Designs, engineers, and manufactures a wide range of ultrahigh vacuum subminiature-D electrical feedthroughs with air and UHV compatible connector fitted cable assemblies. The product range includes 9, 15, 25, and 50 pin instrumentation, power, coaxial, and thermocouple-power contact combinations. The product range has been expanded to include: 9-pin circular subminiature-C electrical feedthrough mounted on a MINI CF flange, viewports, bellows sealed rotary feedthroughs, and bellows sealed linear feedthroughs. We maintain a large inventory of standard components for off the shelf delivery. Minor modifications of standard components, and custom engineered products are also available with quick delivery.

AJA International, Inc. #428
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Sputtering and E-beam Systems for R&D Pilot Production. Static and Rotating Magnetron Sputter Sources for HV and UHV,

Substrate Holders with Rotation, RF Biasing, Heating and Cooling; Sputter Targets, Microwave, RF and DC Power Supplies, Microwave Components and Plasma Sources, RF Ion/Plasma Sources.

Alcatel Vacuum Products, Inc. #319
Ph: 781-331-4200 www.adixen-usa.com

Alcatel manufactures a complete range of Adixen™ brand vacuum products including dry vacuum pumps and dry pumping systems, rotary vane pumps, ceramic bearing turbomolecular pumps, full 5 axis maglev turbomolecular pumps, molecular drag pumps, vacuum valves, vacuum gauges as well as vacuum flanges/fittings. Alcatel is also the world leader in helium leak detectors.

Altair Technologies, Inc. #323
Ph: 650-508-8700-121

www.altairusa.com

•Precision Furnace Brazing Services •Engineering and Design Assistance •Turnkey Manufacturing •UHV Products

Ambios Technology, Inc. #437
Ph: 831-429-4200 www.ambiostech.com

Ambios manufactures high performance, state-of-the-art, surface metrology equipment for industrial and academic researchers. Product line includes stylus profilometers, non-contact optical profilers, and AFM and SPM instruments.

American Institute of Physics #632
Ph: 516-576-2485

www.aip.org

AIP offers an open-access publishing option to authors who contribute to any AIP journal. The initiative, called Author Select, permits authors, or their funding agencies, to pay a fee prior to publication so that their articles will be freely available on AIP's Scitation online journal platform. Purchase an AIP Article Pack. Simply prepay for a set number of articles from AIP journals and enjoy prices as low as \$2.50 per article.

Ametek Inc. #208
Ph: 412-828-9050 www.ametekpi.com

The Dycor Dymaxion Mass Spectrometer offers the latest technology in gas analysis and includes System 2000 software for Windows XP. Features include ranges from 1-100,

1-200, and 1-300 AMU, a zero drift electrometer amplifier that ensures repeatable data, 32 bit multi-threaded operating software for real time process control, extensive systems integration capability, and Visual basic scripting. Ametek also offers PPT level trace moisture and oxygen analyzers that monitor gas purity.

Applied Surface Technologies #705
Ph: 908-464-6675 www.co2clean.com

The CO2 Snow Jet Cleaning System will be demonstrated. The cleaning process is simple, removing particles of all sizes (to below 0.03microns) and also organic residues from surfaces. This cleaning process works well on many substrates, vacuum parts, analytical samples (AFM), optics, and many other applications. The Snow Jet process is, non-destructively, residue-free with no environmental limitations. Bring test samples!

Asemblon, Inc. #325
Ph: 425-558-5100 www.asemblon.com

Asemblon, Inc. is a supplier of ultra-high purity alkane thiols. We are experts in molecular self-assembly on a variety of surfaces including gold. We offer custom synthesis on a contract basis and will develop custom polymers and other materials through our joint venture partners.

Asylum Research #411
Ph: 805-696-6466

www.asylumresearch.com

Asylum Research manufactures advanced AFMs for nanoscale science. The MFP-3D AFM features unprecedented precision while maintaining image clarity: NPS Nanopositioning System for precision with closed-loop operation in all axes; a low noise, fully-digital controller; built-in nanolithography and manipulation; advanced 3D rendering; conductive AFM measurements; advanced optical capabilities for simultaneous AFM and optical imaging. New accessories include the NanoIndenter and environmental controls.

Atlas Technologies #329
Ph: 360-385-3123 www.atlasuhv.com

Leader in Aluminum Vacuum Technologies. UHV Flanges & Fittings Higher vacuums, Faster, Cleaner, Larger and Lower cost. Atlas Designs and Fabricates custom aluminum vacuum chambers used for: *Synchrotron

light sources. *Semiconductor process tool.
*Solar process tools. *Nuclear radiation environments. *Low cost large vacuum chamber needs. *Light weight & high thermal performance vacuum chambers * More

Attocube Systems AG #201
Ph: 49-89-2877-8090 www.attocube.com
Attocube systems AG manufactures and distributes a complete line of easy-to-use probing stations, scanning probe microscopes and nanopositioning systems for temperatures in the range from 300K down to 10mK! The innovative instruments are also compatible with HV and UHV environments as well as with high magnetic fields up to 15T.

AVS—Ask The Experts #126
Ph: 212-248-0200 www.avs.org
The AVS Vacuum Technology Division will once again host the 'ATE' booth which will be staffed with experts in different aspects of vacuum technology to answer questions any vacuum related questions you may have. . . Is your vacuum system behaving strangely? Do you have questions on the production, measurement or containment of high vacuum? Does your vacuum system need therapy? Is it moody, with good days and bad days? Does your brain seem like a vacuum when you try to solve the problem? Visit the ATE booth and get FREE therapy and help!

AVS History Booth #130
Ph: 212-248-0200 www.avs.org
Vacuum History: photographs and memories Come see actual examples of old vacuum equipment as well as photos of the AVS collection, photos of people and events, and records of important events in vacuum technology and AVS history. The AVS History Committee will show some of its activities in preserving records, books, and equipment and making these available on the web.

BellowsTech, LLC #234
Ph: 973-785-4630 www.bellowstech.com
BellowsTech, LLC; premier producer of edge welded bellows, specializes in the design & manufacture of precision edge welded bellows & assemblies, in a wide array of alloys and dimensional configurations serving the high vacuum, semiconductor, oil services and process control industries. Vacuum applications include valve stem seals, expansion joints, actuators, & vibration dampers. Our experience and expertise offers custom solutions that meet budget and deadline expectations.

BOC Edwards #435
Ph: 978-658-5410 www.bocedwards.com
Products & services include vacuum pumps, instrumentation and components for the R&D, scientific instrument, semiconductor, industrial and chemical processing industries. We offer online shopping at www.bocedwards.com for a variety of our products and offer a wide range of courses which are available through our Technical Training Center

Brooks Automation #311
Ph: 978-262-2400 www.brooks.com
Brooks Automation is the global leader in the development and application of innovative vacuum technology solutions. Through our CTI-Cryogenics®, Granville-Phillips®, and Polycold® Systems solutions, we provide a broad range of critical vacuum components, controls and subsystems that are key to the performance of semiconductor, flat panel and disk drive manufacturing equipment.

CAMECA Instruments #315
Ph: 203-459-0623 www.cameca.com
With solutions for nanoscale characterization and beyond, CAMECA offers the newest generation atom probe, LA-WATAP featuring femto-second laser evaporation + exclusive Advanced Delay Line Detector for true quantitative, compositional 3D imaging at the atomic scale. Our LEXES Shallow Probe has set the standard for in-line fab metrology. We also offer wafer characterization tools, ULE Quadrupole SIMS 4600; ULE magnetic sector IMS Wf; and a full range of research SIMS and EPMA.

CeramTec North America #518
Ph: 864-682-3215 www2.ceramtec.com
CeramTec North America is the world leader in the design and manufacture of ceramic-to-metal and glass-ceramic hermetically sealed electrical & optical components including: feedthroughs, multipin connectors (Circular & Sub D Type), coaxial connectors, viewports/windows, thermocouples, isolators, baseplate feedthroughs and accessories. More than 55 years of experience & an ISO 9001:2000 quality system stand behind our hermetically sealed components!

DOE/BES Nanoscale Science Research Centers #602
http://www.sc.doe.gov/bes/BESfacilities.htm#NSRC
The Department of Energy, Office of Basic Energy Sciences has developed five new Nanoscale Science Research Centers:
► The Center for Functional Nanomaterials.
► The Center for Integrated Nanotechnologies.
► The Center for Nanophase Materials Sciences.
► The Center for Nanoscale Materials.
► The Molecular Foundry.
These facilities operate as user facilities for interdisciplinary research at the nanoscale, encompassing new science, new tools, and new computing capabilities.

Duniway Stockroom Corp #334
Ph: 650-969-8811 www.duniway.com
Duniway Stockroom specializes in vacuum equipment and supplies; ion pumps and controls; flanges, gaskets, bolts and nuts; vacuum gauges and controls; mechanical pumps and rebuild kits; supplies (oils, greases, hoses, bell jars) diffusion pumps and leak detectors. Equipment rebuilding services and a variety of reconditioned equipment. Free Catalog.

Eagle Instrument Services #703
Ph: 502-380-0990 www.eaglevac.com
At Eagle we pride ourselves in being a leader in providing quality repair services for turbo pumps, controllers, mechanical, diffusion and diaphragm pumps. A variety of pumps are available as loaners and/or exchanges to fit our customer's needs. Turbo Repair Kits and Refurbished equipment are available. All work and equipment include a One Year New Parts Warranty.

Elsevier #630
Ph: 212-633-3758 www.elsevier.com
Come and visit the Elsevier booth. . . Browse through the latest books and journals in the field of materials science and physics and take advantage of special discounts available to attendees. Pick up your free samples of leading journals such as Surface Science, Thin Solid Films and Vacuum

FMG Enterprises, Inc. #415
Ph: 408-982-0110 www.fmgvacpump.com
FMG has been rebuilding OEM Industrial Vacuum Pumps, compressors, blowers and peripherals since 1985 for customers that demand cost-effective, ultra-reliable vacuum systems including DoD and R&D Lab facilities. FMG Certified™. Rebuilt Turbo Molecular, Cryogenic & Dry pumps carry a two year warranty demonstrating our superior quality and reliability. FMG utilizes its custom 20,000 square foot rebuild facility to ensure that your pumps are returned promptly, fully tested and in like new condition.

Gamma Vacuum #422
Ph: 952-445-4841 www.gammavacuum.com
Gamma Vacuum manufactures Ultra-High Vacuum products including ion, titanium sublimation, and non-evaporable getter pumps. Our staff has over 130 years of combined UHV experience and has applied their knowledge to bring the vacuum community a line of UHV products that excel in performance and value.

Garlock Helicoflex Company 116
Ph: 916-984-7631 www.helicoflex.com
Garlock Helicoflex is the leading provider of metal sealing solutions for complex applications. Products include the Delta® seal for UHV/UHP applications, Ultra Flex® low load metal seals, Helicoflex® spring energized seals, and the QDS® clamp and seal system for KF/ISO flange systems—to name a few. Applications include e-beam guns, end point windows, KF/ISO flanges, gas/liquid delivery systems, injector nozzles, manifold rings and chamber inlet/outlet connections.

GasFlo Products Inc. #618
Ph: 973-276-9011 www.gasflo.com
GasFlo Products Inc. a manufacturer of valves, fittings and assemblies for the Semiconductor/Specialty Gas Industry introduces: GFP Vacuum Division—providing a superior, cost effective line of vacuum pump parts, repair kits and component remanufacture services, for vane, piston, scroll, dry pumps and blowers. Shafts, rotors and crankshafts are available for most pumps including many obsolete models. Look to GFP Inc. to supply all your component, welding, tube bending and custom requirements.

GNB Corporation #533
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Manufactures durable, reliable, high quality vacuum valves, chambers and components. Established in 1968 as America's leading manufacturer of large vacuum valves, GNB is also recognized for its ability to engineer products for demanding and often unique applications and for its world-class customer service. GNB Corporation—Vacuum Excellence Defined.

HeatWave Labs Inc. #203
Ph: 831-722-9081 www.cathode.com
HeatWave Labs specializes in the vacuum tube and vacuum equipment industries. Our expertise includes thermionic cathodes and ion emitters and guns, Ion Sources and ionizers, Ion pumps and controllers, vacuum tube design, processing, specialized refractory materials, UHV sample heating and filament products, temperature controllers and related products.

Hidden Analytical, Inc. #529
Ph: 734-542-6666

www.hiddenanalytical.com
Hidden Analytical manufactures an extensive range of high performance quadrupole mass spectrometers for plasma characterization studies, surface science applications, precision gas analysis and vacuum diagnostics. Showcasing the latest systems for residual and process gas analysis, catalysis studies, combinatorial chemistry and reaction kinetics. For atmospheric gas studies the QIC-20 offers the latest in fast response inlet technology, wide dynamic detection range and baseline resolution.

Horiba Jobin Yvon, Inc. #410
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HORIBA Jobin Yvon—Thin Film Division manufactures Spectroscopic Ellipsometers for characterization of thin film and bulk materials. Spectroscopic Ellipsometry measures accurately film thickness and optical constants of any type of materials. HORIBA Jobin Yvon provides also Process Control sensors such as Optical Emission Spectrometers, Imaging Laser Interferometers dedicated to In Situ Real Time plasma analysis, etch-deposition rates monitoring and End Point Detection.

Huettinger Electronic #512
Ph: 860-255-6555 www.huettinger.com
HUETTINGER offers a broad range of power supplies for a variety of vacuum sputtering, etching and induction heating applications. Outputs range from 300W up to 300kW at frequencies from DC to 27.12MHz. This year HUETTINGER is introducing a new line of DC power supplies for PVD, bias, cathodic arc and HIPIMS applications.

HVA, LLC #202
Ph: 775-359-4442 www.highvac.com
HVA is a premier manufacturer of high and UHV vacuum valves for the semiconductor, scientific, and high-technology industries. Product line includes stainless-steel gate valves, 3-position valves, angle valves, complete throttle/isolation gate valve systems, stainless-steel/aluminum rectangular valves, pendulum valves, rapid service slit valves for easy maintenance, and more.

Image Metrology #336
Ph: 45-46-923400 www.imagemet.com
Image Metrology is a worldwide leading supplier of image processing software for "nanomicroscopy". Our main product is the Scanning Probe Image Processor, SPIP. SPIP offers an unmatched set of features for image calibration, correction and analysis including automatic particle and roughness analysis, 3D visualization and batch processing. SPIP supports a wide variety of microscope types and their file formats including SPM, interference microscopes, SEM, confocal microscopes and profilers.

Impedans Ltd. #507
Ph: 353-1-7007-430

www.impedans.com
Impedans is a leading provider of high speed, high resolution time resolved scientific instrumentation for use in Langmuir Probe, Retarding Field Analyser, Faraday Cup, RF, Optical, OES and other applications. Impedans' systems are based on an open architecture, allowing users to access and modify data acquisition and analysis routines for their own applications.

Inland Vacuum Industries, Inc. #223
Ph: 585-293-3330

www.inlandvacuum.com
Inland Vacuum Industries manufactures & distributes a complete line of vacuum fluids and lubricants for the general vacuum industry including semiconductor / electronic and food packaging areas. Inland also offers a line of preventative maintenance products, inert heat transfer fluids, high vacuum greases and waxes, fluids reclamation services and custom distillation. Product information can be found on our web site located at www.InlandVacuum.com.

Instrutech, Inc. #229
Ph: 303-651-0551 www.instrutechinc.com
InstruTech, Inc. develops and manufactures state of the art vacuum gauge technologies. Along with its convection vacuum gauges and modules, Instrutech will show case its new product dubbed the "Hornet"—a new miniature ionization vacuum gauge module.

ION-TOF USA #508
Ph: 845-352-8082 www.ion-tof.com
ION-TOF is the leading European manufacturer of Time-of-Flight Secondary Ion Mass Spectrometers (TOF-SIMS). Our very successful TOF-SIMS 5 provides detailed elemental and molecular information about surfaces, thin layers, and interfaces of the sample, with full 3D characterization. It's unique design guarantees optimum performance in all fields of SIMS applications. New this year is a fully automated high reproducibility clean room version, the TOF-SIMS 300R, for the analysis of 300mm wafers.

J.A. Woollam Co., Inc. #423
Ph: 402-477-7501-101

www.jawoollam.com
Spectroscopic ellipsometers for thin film characterization: multi-layer thicknesses, optical constants (n and k), in situ process monitoring and control, and more. New instruments extend the wavelength range to both vacuum ultraviolet and infrared (142nm to 33 microns). Offer both research-grade and high-speed metrology tools for process monitoring.

Jetseal, Inc #429
Ph: 509-467-9133 www.jetseal.com
World class manufacturer of quality high performance metal seals, gaskets and sealing devices. Established in 1988 in Spokane, Washington, Jetseal manufactures the most complete line of AS1895 qualified resilient metal seals. As the recipient of 9 recent patents in seal designs, Jetseal is a leader in sealing solutions for the Aerospace, Rocket Propulsion, Nuclear Power Generation, Semiconductor and Co-Generation Industries.

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Screw Drive Pump innovator provides tough, durable, reliable dry pumps for the semi-coordinated and FPD market. 140,000 sq. ft. facility & 550 employees are ISO90210-2000 & 14001 certified to ensure quality and reliability. Dry Vacuum Pumps: WE specialize in hard and harsh process where corrosive gases and/or heavy particles present, fast and large volume vacuuming process and high vacuum stage process in which the pumps save down time and are energy and space efficient. Kashiyama dominated the dry vacuum pump market of 300mm semiconductor process in Japan last year.

Kimball Physics Inc. #514
Ph: 603-878-1616

www.kimballphysics.com
UHV Electron Guns and Ion Guns: Energies 1eV to 100keV. Applications: Surface, Vacuum, Space and Plasma Physics, Neutralization, Cathodoluminescence, Semiconductor processing, FEL, RHEED, ESD, Custom. Features: Modular optics, Compact fiber-optic control, LabView, RS-232, RS-422, Energy sweeping, Rastering, Pulsing, Feedback stabilization. Components: Multi-CF Fittings, Compact vacuum chambers, eV Parts, Cathodes, Faraday cups.

Kratos Analytical, Inc. #401
Ph: 845-426-6700 www.kratos.com
Kratos Analytical will exhibit its line of high performance XPS multi-technique spectrometers designed for R&D applications. The AXIS Ultra provides the latest in spectroscopic and imaging capabilities with analytical flexibility. Also being exhibited is the AXIS Nova, an automated XPS instrument combining research level performance with automation and high throughput.

k-Space Associates, Inc. #528
Ph: 734-668-4644 www.k-space.com
k-Space Associates specializes in advanced in-situ, real-time monitoring of thin-film deposition. BandiT measures substrate temperature via band-edge absorption. Our kSA 400 system is the leader in analytical RHEED. RateRat Pro determines deposition rate and optical constants. And choose the kSA MOS for 2D thin-film curvature and stress, with ex-situ models providing full-wafer scans or complete thermal ramping. For more information, stop by Booth 528 or contact us at requestinfo@k-space.com.

Kurt J Lesker Company #301
Ph: 412-387-9200 www.lesker.com
Manufacturer/distributor of standard and custom vacuum systems and components. Manufacturing capabilities include: OEM components, vacuum chambers; system building blocks; standard & custom vacuum hardware including a large variety of electrical, instrumentation and thermocouple feedthroughs; and complete deposition components and systems including PVD, MOCVD, and ALD. Stocking distributor of scroll, rotary vane, turbomolecular, diaphragm, and roots pumps. 900-page, full-color catalog.

KYKY Technology Development Ltd. #432
Ph: 0086-010-6257-1592

www.kyky.com.cn
For 46 years KYKY has focused on scientific instrument research, development, manufacturing and marketing. Products include vacuum instrument & equipment; Turbo Molecular pumps, Gate valves, Ion pumps, Helium Leak Detectors; Multifunction Magnetic Sputter Metallizer; Digital SEM, X-ray Energy spectrometer, Quadrupole Gas Mass Spectrometer; Cooling Circulator Radio-frequency Electron Surgical Unit, 13CUBT mass Spectrometer.

Lake Shore Cryotronics, Inc. #320
Ph: 614-891-2244 www.lakeshore.com
Lake Shore Cryotronics is a leading developer of cryogenic, magnet-based, load-lock, and high vacuum micro-manipulated probe stations used for non-destructive testing of devices on full and partial wafers. They provide a measurement platform for magneto-

transport, electrical, electro-optical, parametric, high Z, DC, RF, and microwave (up to 67 GHz) material properties. Nanoelectronics, quantum wires and dots, semiconductors, superconductors, and spintronic devices are typical materials measured.

Lambda Americas #218
Ph: 732-922-9300 www.lambda-hp.com
Lambda High Power is a leading manufacturer of High Power AC to DC Programmable, and High Voltage Capacitor Charging Supplies. With power levels from 500W to 90kV and voltaged from 6V to 50,000V our product line is unique in the industry.

Mantis Deposition, Ltd. #532
Ph: (44)1844-260-160
www.mantisdeposition.com
Mantis Deposition provides high quality UHV deposition components and systems for the thin-film coating community. Instruments include; RF atom/ion sources, gas crackers, nanoparticle sources, sputter sources, mini e-beam evaporation sources. Our products are designed for MBE, surface science, PVD, and nanocoatings. Accelerated metallic nanoparticles (1-10nm) can be deposited adherently onto any substrate using our unique process. Complete systems are offered.

McAllister Technical Services #219
Ph: 208-772-9527 www.mcallister.com
Exhibiting UHV Kelvin-Probe, plus full range of standard and custom UHV devices such as bellows-sealed positioners, XYZ manipulators, quick-entry load lock system, sample heating/cooling and transfer devices, linear motion feedthroughs, PLD sample & target manipulator, differentially-pumped rotary platform, e-beam evaporator and many accessories.

MDC Vacuum Products, LLC #412
Ph: 510-265-3500 www.mdcvacuum.com
Stocks thousands of off-the-shelf components and provides the widest range of high and ultra-high vacuum components in the industry. The MDC product line detailed on our technically based website, and in our catalog, consists of flanges, fittings, valves, roughing hardware, vacuum gauge tubes, glass sapphire and quartz viewports, electrical and fluid feedthroughs, motion and manipulation instruments, thin film electron-beam evaporation systems and surface science chambers. MDC is a ISO 90210:2000 registered company.

Midwest Tungsten #123
Ph: 630-325-1001 www.tungsten.com
Midwest Tungsten supplies a full range of tungsten, molybdenum and tantalum products including electron and ion beam filaments, evaporative boat sources, plasma sources, machined parts and wire, sheet and rod. We manufacture evaporation materials, supply Dow Corning diffusion pump fluid, and recycle tungsten, molybdenum and tantalum scrap.

MKS Instruments #300
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A global provider of instruments, components and subsystems for measuring, controlling, powering and monitoring of critical parameters in vacuum-based manufacturing environments. Products include pressure and vacuum measuring gauges; pressure control valves; vacuum components and valves; mass flow controllers; gas analysis instruments; portable helium leak detectors; RF/microwave/DC plasma generators; digital control network devices; and portable calibration systems

MRK International #209
Ph: 408-252-8077 www.mrkus.com
MRK International, LLC is committed to providing the highest quality in Consulting, Marketing and Sales for high-tech global corporations to expand and develop new markets abroad in Semiconductor, MEMS, Nanotechnology and IT industries. We exhibit innovative products, such as TMEIC Ozone Generator to provide highest concentration ozone with no metal contamination, Toshiba Ceramics Filters/Diffusers to improve thrust as well as yield and Valqua O-rings to assure your critical processes.

NanoAndMore USA, Inc. #515
Ph: 843-521-1108
www.nanoandmore.com
Digital Holographic Microscope, instant 3-D images from Lyncee tec. Particle analyzer from Nanosight—individual particles and complete distribution analysis. AFM probes from NANOSENSORS, NanoWorld, Budget-Sensors. SPIP software, Minus-K vibration isolation equipment.

NanoInk, Inc. #337
Ph: 847-679-6266 www.nanoink.net
NanoInk is an emerging growth technology company specializing in nanometer-scale manufacturing & application development for the life science & materials industries. With Dip Pen Nanolithography® (DPN®) technology & tools, NanoInk is able to offer customers innovative solutions for precision nanoscale deposition using a variety of materials to create nanoscale features on diverse surfaces. The NSCRIPTOR™ is a complete turnkey DPN system with optimized hardware, software, & enabling consumables.

Nor-Cal Products, Inc. #406
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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. An ISO 9001-2000 certified company.

Oerlikon Leybold Vacuum USA, Inc. #331
Ph: 724-325-6558
www.leyboldvacuum.com
A leader in providing vacuum pumps, accessories and services to all industries requiring vacuum. These include turbomolecular pumps, cryo pumps, oil lubricated and oil-free forevacuum pumps, gauges, leak detector, valves, and fittings. Leybold also provides Engineering and Applications support, plus a full line of services for all brands of vacuum pumps.

Omicron Nanotechnology USA #522
Ph: 952-345-5240
www.omicron-instruments.com
OMICRON NanoTechnology is the premier supplier of UHV instruments for nanoscience-related research. We invite you to visit our booth to see the latest results from the next generation Low Temperature (down to 4K) Atomic Force Microscope with enhanced LHe hold time. The Variable Temperature AFM/STM is now available with a non-optical force sensor. We will also be highlighting the ESCA+, NanoESCA and NanoSAM surface

science systems. From thin film development to characterization, Omicron can help.

Osaka Vacuum USA, Inc. #107
Ph: 510-770-0100
www.osakavacuum.co.jp
Osaka field-proven TG-M & TG-F Compound Turbomolecular Pump series feature maintenance-free, reliable and affordable high vacuum pumping for all applications ranging from semiconductor processing to UHV evacuation. Effective speed: 50 L/S to 3,400 L/S. Standard with high throughput/corrosive compatibility. Full service center and global support available.

Pascal Technologies #225
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www.pascaltechnologies.com
Pascal Technologies is a manufacturer's representative and distributor supporting the requirements of the high technology community for over 20 years. Based in Fredericksburg, Virginia, we supply a large range of vacuum systems and components to support all of your vacuum needs. Visit us on the web at www.pascaltechnologies.com

Pfeiffer Vacuum Technology, Inc. #520
Ph: 603-578-6500
www.pfeiffer-vacuum.com
Pfeiffer Vacuum manufactures a complete line of turbo pumps including TPH 2301—for high gas loads; magnetic coupled rotary vane pumps-eliminates oil leaks; SmartTest™ leak detectors; New Prisma™ Plus RGA and ActiveLine analog vacuum gauges.

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Since 1991, PHPK Technologies has established itself as a major supplier of cryogenic and vacuum equipment to the global market. From tube size valves and CVI Torrmaster Cryopumps to our engineered systems, PHPK products are installed at every National Laboratory, NASA facility and throughout the Aerospace, Industrial Gas and Semiconductor industries.

Physical Electronics #418, 419
Ph: 952-828-6259 www.phi.com
Physical Electronics (PHI) is a subsidiary of ULVAC-PHI, the world's leading supplier of surface analysis instrumentation. PHI's innovative AES, XPS, and SIMS instruments are used to accelerate the development of advanced materials for a broad range of high technology applications. For additional information visit our website at www.phi.com.

Precision Plus Vacuum Parts #200
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www.precisionplus.com
Precision Plus Vacuum Parts is the recognized leader in providing high quality, low cost vacuum pump replacement parts for most vacuum pump companies including Alcatel, BOC Edwards, Ebara, Busch, Kinney, Leybold, Stokes, Precision Scientific, Welch and more. Over 4,000 parts are guaranteed to meet or exceed OEM performance and are available for immediate delivery. Contact us at 1-800-527-2707 or ORDER ONLINE at www.precisionplus.com.

Princeton Scientific Corp #221
Ph: 609-924-3011
www.princetonescientific.com
Princeton Scientific Corp. offers a wide range of single crystalline and polycrystalline ma-

terials for research and production. Some of these materials groups can be classified as follows: Metal Single Crystals III-VI Materials II-VI Materials III-V Materials Sputtering Targets Zone Refined Rods Custom cutting, polishing, and sometimes coatings are standard. Additional Products: 'Precision Wire Saws' and lasers (cw and q-switched) for 532 nm & 1064 nm wavelength.

PVD Products #322
Ph: 978-694-9455

www.pvdproducts.com

PVD Products sells a complete line of high quality thin film deposition systems including magnetron sputtering, laser deposition and thermal and electron beam evaporators for both R&D and proto-type production applications. All systems can be fully computer controlled and load-locked. PVD Products manufactures components such as the Titan magnetron sputter source, substrate heaters, and PLD target manipulators. We also provide in-house deposition and SEM/EDS services.

Q-Sense Inc. #125
Ph: 410-768-9812 www.q-sense.com

Q-Sense provides research instruments for real-time, label free monitoring of molecular adsorption or interaction to a wide variety of substrates. The QCM-D technology enables a better understanding of interfaces, e.g. biocompatibility of implant in contact with human tissue. Applications include biomolecular interactions involved in biomaterials, nanotechnology and biosensor development.

RBD Enterprises, Inc. #509
Ph: 541-330-0723-310

www.rbdenter.com

RBD is a provider of equipment and services to the surface analysis community. RBD repairs, upgrades, and resells, previous generation Physical Electronics (PHI, Perkin-Elmer) surface analysis systems and components. RBD also provides Auger and XPS analytical services through our Surface Analysis Lab.

RF VII Inc. #521
Ph: 856-875-2121 www.rfvii.com

Complete line of RF Generator and Auto-Matching Networks. We also represent a complete line of TEK-TEMP Chillers and Heat Exchangers, for all your temperature control Plasma Systems. Our RF service facility is fully equipped to repair and upgrade existing models of RF equipment. We offer 48 hour turn-around for our production based customers. We offer a full range of RF equipment parts including new power tubes for older RF generators.

RHK Technology Inc. #233
Ph: 248-577-5426 www.rhk-tech.com

Imaging the Future of Nanoscience: RHK is the chosen company for fundamental science at the atomic scale. Our UHV STM, 4-probe STM, AFM, and controllers are engineered for the advanced researcher but also comfortably systemized for the first-time buyer. To choose RHK is to experience peak performance, scalability, compatibility, and value. Celebrating 20 years of commitment to customer and quality, we partner with the researcher to support our products over a lifetime of experimental success.

SAES Getters USA #124
Ph: 719-576-3200 www.saesgetters.com
SAES Getters will display its world-leading get-

ter solutions supporting various industrial and scientific applications. Exhibit highlights will be: MK5 SORB-AC and CapaciTorr pumps for vacuum systems; WaferGetter pumps for semiconductor process chambers; IntegraTorr sputtered NEG coatings for particle accelerators; getter solutions for MEMS, flat panel displays, cryogenics, lamps and more.

Scientific Systems #519
Ph: 353-8-395-122 www.scisys.com

Scientific Systems advanced Langmuir Probe, SmartProbe™ is used worldwide by plasma research laboratories and plasma based manufacturing industries. The SmartProbe™ enables users to completely understand the characteristics of a plasma and how they relate to the plasma process being developed. It measures a wide range of plasma parameters such as plasma density, uniformity and electron temperature distribution. Scientific Systems is part of the Straatum Group.

SCT/Euro Industries #206
Ph: 719-264-6111

www.sct-ceramics.com

SCT is an ISO certified producer of ceramics-to-metal and sapphire-to-metal seals and assemblies. SCT is the world largest provider of hermetic assemblies to a worldwide base of vacuum, medical, nuclear, military and industrial devices OEMs. The entire process, including design, rapid prototyping, small to high volume production, brazing, welding, testing, etc...is located on a single integrated site.

Semicore Equipment, Inc. #424
Ph: 925-373-8201 www.semicore.com

Specializes in new, remanufactured and pre-owned Sputtering, Evaporation & Etching systems for the thin film industry. Semicore has also introduced our own SC line of custom-built systems tailored to your process specifications. Semicore now provides On-line connectivity between your production tool and our factory personnel.

Servometer®/PMG, LLC #236
Ph: 973-785-4630 www.servometer.com

Servometer/PMG, LLC manufactures custom metal bellows & assemblies, bellows type flexible shaft couplings, gold plated bellows contacts, and light weight Electroforms. Servometer bellows are flexible, leak tight, and can be used as springs and flexible seals. Bellows type flexible shaft couplings can accommodate axial, angular and offset deflections with zero backlash & low windup. Gold plated contact bellows can be used in applications where good contact and continuity are important.

Sierra Applied Sciences, Inc. #228
Ph: 303-440-0861

www.sierraapplied.com

The industry leader in high performance planar magnetron technology for thin film industry. With superior designs, customization and diverse cathode product lines, we provide solutions for any complex deposition application ranging from decorative to magnetic media. We offer the highest target utilization available in the industry and the largest variety of cathode sizes, configuration and mounting options. By increasing productivity and reducing downtime between target changes, our cathodes provide the lowest cost per coating. Our best price guarantee plus unrivalled support makes buying from us risk free. Sierra Applied Sciences is the world leader for planar magnetron cathodes.

Smart Imaging Technologies #100
Ph: 713-589-3500 www.smartimtech.com

SIMAGIS® Smart Imaging Spreadsheet is an advanced user-friendly 2D/3D image analysis software platform. SIMAGIS® ready-to-run solutions for nanotechnology, semiconductor, material science and customized applications require minimal end user training. SIMAGIS® naturally automates image analysis workflow, generates reliable results and delivers the most advanced solutions available for Optical, SEM, TEM, AFM or CT imaging.

Solid Sealing Technology, Inc. #307
Ph: 518-266-6015 www.solidsealing.com

Solid Sealing Technology, Inc specializes in the design and manufacture of highly engineered, hermetic products using metalizing and brazing, glass-ceramic sealing, welding, and critical mechanical assembly. Products include: vacuum feedthroughs, coaxial connectors, multi-pin connectors, thermocouple connectors, viewports, and isolators. SST is a global provider of industry standard and custom designed products.

SPECS GmbH #104
Ph: 49-30-467824 www.specs.de

SPECS manufactures systems and components for surface analysis, based on electron spectroscopy and imaging techniques such as STM and LEEM. In customized systems SPECS integrates facilities for thin film preparation and in-situ analysis in UHV.

Staib Instruments #321
Ph: 757-565-7000

www.staibinstruments.com

STAIB Instruments designs/manufactures innovative, high-performance, electron-optical equipment for in-situ material analysis. Electron Guns for surface studies, RHEED to study structure and quality of thin films, Energy spectrometers (Auger, XPS, UPS) for analytical studies. SEM with micro/nano-focus guns, Photo-ElectronEmission Microscopes (PEEM), for high time/space resolution studies of chemical distributions, Custom analytical chambers and instruments.

Stanford Research Systems #612
Ph: 408-744-9040 www.thinksrs.com

Stanford Research Systems manufactures residual gas analyzers (open and closed ion sources), ion gauge controller, and electronic test equipments.

Sumitomo (SHI) Cryogenics of America Inc. #207
Ph: 610-791-6700

www.shicryogenics.com

Sumitomo (SHI) Cryogenics of America, Inc. (SCAI), formerly SHI-APD Cryogenics, Inc., has been producing quality cryogenic equipment for nearly 50 years. SCAI's diverse product line features the new Marathon® CP cryopumps, which are designed to handle the diverse and demanding requirements of a broad range of vacuum and deposition technologies, while their pumping performance remains unsurpassed in the industry.

Surface Preparation Laboratory #433
Ph: 31-75-612-0501

www.surface-prep-lab.com

Surface Preparation Laboratory [SPL] enjoys meeting the challenges set by its clients. Therefore: SPL provides well-prepared and well-characterized crystal surfaces for research. SPL has a well-deserved reputation

for being effective and efficient. SPL is capable of meeting the high demands of its clients that include: Sandia Lab., IBM Thomas J. Watson Research Center, Los Alamos, Lawrence Berkeley Lab., Harvard University, Univ. of California, Arizona State Univ., Univ. of Tennessee

Synergy Vacuum, Inc. #129
Ph: 970-240-9228

www.synergyvacuum.com
Synergy Vacuum—Authorized Sales & Service of The Original ANEST IWATA Oil-Free Scroll Pumps; sales & service of WELCH REITSCHLE THOMAS pumps; Total Support—customizable maintenance & exchange; and new lines: The SV60 oil-free pump/blower package with 55 cfm & 2 x 10-4 Torr ultimate pressure; and the DVSL 100B & 500B high vapor pumping capacity scroll pumps with all bearings, seals, & grease removed from vacuum path. See us for OEM parts & service for ISP, ESDP, GVSP, DS, & DIS pumps.

Ted Pella, Inc. #332
Ph: 530-243-2200 **www.tedpella.com**

Ted Pella, Inc offers a full range of versatile compact benchtop vacuum coatiers for thin film research and electron microscopy applications which can be equipped with high resolution thickness monitors and multi-angle rotary stages. New products are a full line of vacuum pumps and parts for research applications and small scale production. On display will also be a large selection of supplies, consumables, tools and sample preparation equipment for SEM, TEM, AFM, Raman light microscopy and nanotechnology.

Telemark #224
Ph: 510-887-2225 **www.tfi-telemark.com**

Telemark manufactures evaporation components, including electron beam sources, e-beam power supplies, optical monitors, plasma chemistry monitors, water vapor cryotrap, and related accessories. Telemark also offers quartz crystal deposition controllers, spare parts and refrigerant gas charges. An affiliated company offers wafer processing services, including lithography, thin films, and etching.

Thermionics Vacuum Products #328
Ph: 510-538-3304

www.thermionics.com
Vacuum components, systems and accessories for production and research applications including: our new line of compact manipulators; our programmable sweep controller; our RC and HC series of e-Guns™ with dual filament capability for demanding production coating applications; PyraFlat™ rectangular flange; TriBond™ bi-metallic flanges and fittings; gate and poppet valves; sample handling and transfer systems; ion pumps; matChed™ thermocouple gauges; mechanical, electrical and fluid feedthroughs

Thermo Scientific #213
Ph: 608-276-6100

www.thermo.com/surfaceanalysis
Thermo Scientific will display the new K-Alpha Materials Characterization instrument. Using X-ray Photoelectron Spectroscopy (XPS), the K-Alpha enables rapid, accurate and cost-effective quantitative monitoring of the surface chemical composition of the top few nanometers of solid materials including insulators, semiconductors and metals for materials re-

searchers as well as the emerging biotech, nanotech and pharmaceutical industries.

U-C Components #409
Ph: 408-782-1929

www.uccomponents.com
Eliminate virtual leaks and speed vacuum system pump-down with UC Components' RediVac® Vented, Slot-Vented, Coated, & Plated Fasteners and Vacuum Baked O-Rings. Metric, English lines in sst as well as titanium, nickel, aluminum, and other materials with RediVac® finishes including: Precision Cleaned; Ag, Au, & Ni Plated; WS2 & MoS2 Coated; Electropolished. Let UC Components help put your system together! Visit our website at www.uccomponents.com for more information or to order on-line.

UltraVolt, Inc. #324
Ph: 631-471-4444 **www.ultravolt.com**

UltraVolt manufactures over 450 models of regulated high-voltage DC-DC converters. Output voltages are available in ranges from 0 to 62V through 0 to 40kV with output power from 4W to 250W with nominal 12V to 24V inputs. Units feature output over-current protection with self-recovery. Modular and rack-mount units are available.

Vacuabond, Inc. #333
Ph: 408-261-6402 **www.vacuabond.com**

Vacuabond offers high-quality vacuum products and services at a high level of expertise. Vacuabond provides custom-designed UHV systems and components for R&D applications, Semiconductor, Media, Flat Panel Display and Coating industries. CANON-ANELVA Cryo pumps, Helium Leak Detectors and Crystal Vacuum Gauges. PASCAL Laser MBE System, Combinatorial Deposition System and High pressure RHEED System.

Vacuubrand, Inc. #425
Ph: 860-767-5341 **www.vacuubrand.net**

Up and running, compact oil free pumps with outstanding, stable performance/reliability; VARIO, the variable speed pump with an integrated intelligent controller; vacuum gauges, vacuum controllers and a new line of improved, economical rotary vane vacuum pumps. Used for backing/roughing high vacuum systems, for corrosive chemical evaporation and many OEM applications.

Vacuum Engineering & Materials, Co., Inc. #212
Ph: 408-871-9900 **www.vacengmat.com**

Vacuum Engineering & Materials is your "Full-Service PVD Materials supplier for all your Thin-Film needs." Our Products include sputtering targets in all shapes and sizes—and E-Beam Evaporation Materials, Starter Sources and Crucible Liners. Available Materials include Single Element metals, alloys, compounds, co-metallics, dielectrics, precious metals and cermets. Other products and services include backing plates, precious metals reclaim and in-house target bonding.

Vacuum Research Ltd. #503
Ph: 412-261-7630

www.vacuumresearch.com
Manufacturer for 50 years of a broad line of high vacuum valves. Throttle valves, poppet style valves, rectangular port valves, and gate valves from ISO-63 to ISO-630. Valves

with ANSI and JIS flanges in similar sizes. Also Pirani, convection and diaphragm gauges from 10-5 Torr to 2 atmospheres. Rotary vane pumps from 3 to 28 cfm, 6 to 48 m3/hr. Dry pumps from 10 to 30 m3/hr.

Varian, Inc. #513
Ph: 781-605-5426

www.varianinc.com/vacuum
A world leader in providing total vacuum solutions. Product offerings include primary, high and ultra-high vacuum pumps, leak detectors, vacuum valves, and gauging for all applications. Varian offers unique expertise in applications, support, and system design to integrate these superior components into optimized vacuum solutions.

VAT #318
Ph: 781-935-1446 **www.vatvalve.com**

A worldwide leader in the development and manufacturing of quality vacuum valves. Products include: gate, angle, fast-closing, throttle, pressure control, retro fit and customized valves for applications such as pump isolation, load locks, beam lines and other vacuum applications. Our company profile and product line brochure is available upon request.

Veeco Instruments #306
Ph: 516-677-0200 **www.veeco.com**

Veeco is the world leading provider of process and metrology equipment solutions. Foremost in the design and manufacture of ion beam sources and systems for thin film deposition and etch applications, Veeco offers the broadest line of ion sources, including gridded DC and RF, gridless End-Hall, and gridless anode layer sources. Veeco metrology instruments introduces the new Dektak 150 stylus profiler. Delivering the largest Z-based measurement range and detailed analysis of slope features, the Dektak 150 is an ideal platform for thin and thick film characterization. Next-generation engineering, one-button measurement ease, and powerful analysis software guarantee increased measurement capabilities for your fab/lab.

VG Scienta #231
Ph: 925-249-0204 **www.vgscienta.com**

VG Scienta, Inc. has more than forty years experience in the design, manufacture and supply of components & equipment for HV & UHV vacuum applications and is now part of the Gammadata group of companies. VG Scienta is the leading supplier of state-of-the-art electron spectroscopy equipment offering ultra high resolution electron spectrometers, X-ray emission spectrometers and high intensity UV and X-ray sources.

ZPulser LLC. #335
Ph: 508-261-8800 **www.zpulser.com**

Zpulser, LLC (Zpulser™) manufactures unique AWF™ (Arbitrary Wave Form) high power pulsed DC plasma generators for thin film applications that use Zond's proprietary & patented method called MPPT™ (Modulated Pulse Plasma) to economically create thin films with controllable electrical properties, mechanical properties and morphology. We currently serve the commercial coating (hard, wear, protective, tribological), semiconductor, medical coating, optical coating, and data storage markets.