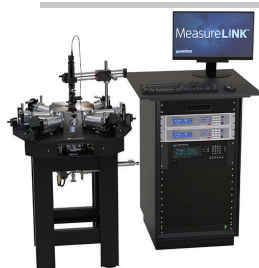


NEW PRODUCTS

Focus on cryogenics, vacuum equipment, materials, and semiconductors

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of its description. Please send all new product submissions to ptpub@aip.org.

Andreas Mandelis



Software for cryogenic probe stations

Lake Shore Cryotronics now ships its cryogenic probe stations with a Windows PC workstation preloaded with the company's MeasureLINK software. The versatile, intuitive software lets users easily control sample temperature—and on certain models, magnetic field—for on-wafer probing measurements. By setting up discrete or continuously varying measurements, users can watch how temperature stabilizes as it approaches

a set control. A process view window in MeasureLINK displays the system's internal status at various points, including the temperature at the sample stage and on the probe arm. The collection of electrical measurements can be controlled as a function of temperature or magnetic field using Lake Shore's MeasureReady and some third-party instruments. That eliminates the need to write custom code so that different instruments can communicate with one another. **Lake Shore Cryotronics Inc.**, 575 McCorkle Blvd, Westerville, OH 43082, www.lakeshore.com

Durable vacuum transducers

According to Thyracont, the new generation of its Smartline vacuum transducers—the cold-cathode VSI and Pirani/cold-cathode VSM models—ensure a longer sensor lifetime by systematically reducing the high voltage of their cold cathodes in high-pressure ranges. Because of the physical characteristics of cold-cathode gauges, at pressures higher than 1×10^{-4} mbar, their inherent sputter effect causes increased abrasion. Endurance tests at 1×10^{-3} mbar demonstrated that the new sensors are three times as durable as other gauges. The devices now also feature a readout of the sensors' deterioration and an operating-hours counter for predictive maintenance. The Smartline vacuum transducers are used in coating, analytics, medical engineering, and vacuum-furnace applications. **Thyracont Vacuum Instruments GmbH**, Max-Emanuel-Str 10, 94036 Passau, Germany, <https://thyracont-vacuum.com>



ELECTRICAL AND
COMPUTER ENGINEERING
COLORADO STATE UNIVERSITY

Now Hiring Lasers Assistant Professor

The Department of Electrical and Computer Engineering at Colorado State University, Fort Collins, invites applications and nominations for a tenure track faculty position at the assistant level to start in Fall 2023. Research areas of particular interest include the field of high intensity lasers and applications. This is a nine-month, full-time position.

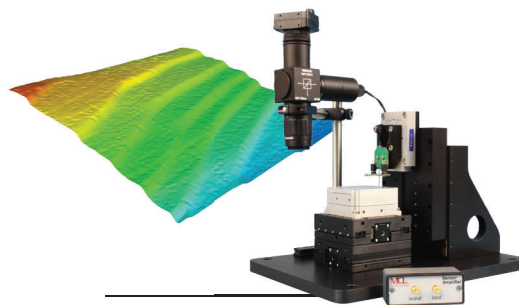
To apply:
<https://jobs.colostate.edu/postings/112849>

CSU is an EO/EA/AA employer and conducts background checks on all final candidates.

MCL
MAD CITY LABS INC.

High Resolution AFM and NSOM

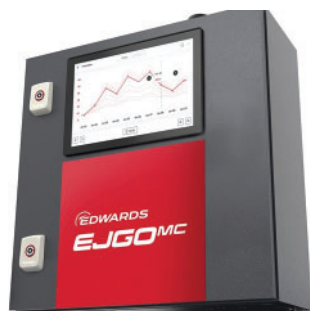
Quantum Sensing, Metrology, Biophysics



Atomic Step Resolution
Closed Loop Nanopositioners
Precalibrated Position Sensors
Automated Software Control
Designed for DIY AFM

sales@madcitylabs.com
www.madcitylabs.com

NEW PRODUCTS



Vacuum-pump controller

In one place, the EJGO and EJGO MC controllers from Edwards provide the information and metrics needed to intelligently manage, direct, and regulate the operation of the company's vacuum-pump systems. Users can easily pull up relevant data on a touch human-machine interface or a web browser on a laptop, tablet, or mobile phone. They can configure data and parameters relevant to their process and observe their pump's performance on the go. The EJGO can generate trends maps that allow comparison of multiple metrics across pump cycles and at various times. Available in standard and premium options, the EJGO MC offers advanced central control over vacuum pumps—up to 20—and processes to ensure the best combination for optimum power consumption. The EJGO and EJGO MC automatically update to the latest cyber-

security protocols so that users' networks are secure when connected to the internet of things. **Edwards Ltd**, Innovation Dr, Burgess Hill, West Sussex, RH15 9TW, UK, www.edwardsvacuum.com

Silicone elastomer

Master Bond MasterSil 323AO-LO, a two-component silicone elastomer with a self-priming feature, is designed for bonding, sealing, and gap-filling applications. The electrically insulating and thermally conductive compound meets NASA's low-outgassing specifications and can be used in the aerospace, electronic, optoelectronic, and specialty OEM industries. It has a thermal conductivity of 1.15–1.30 W/(m·K). It is highly flexible with a low tensile modulus of 500–700 psi, an elongation of 50–60%, and a hardness of 70–75 Shore A. Those properties enable it to withstand aggressive thermal cycling and mechanical shock. MasterSil 323AO-LO bonds well to various substrates, including metals, composites, glass, ceramics, plastics, and other silicones, without imparting residual stress when heat cured. It is serviceable from –54 °C to 204 °C. Its paste-like consistency allows it to be used as a gap-filling material where minimum flow after application is desired. **Master Bond Inc**, 154 Hobart St, Hackensack, NJ 07601-3922, www.masterbond.com



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

ASSISTANT PROFESSOR IN THE FIELD OF EXPERIMENTAL NUCLEAR PHYSICS

The Department of Physics and Astronomy at the University of Tennessee, Knoxville (UT) invites applications for a tenure-track faculty position at the rank of Assistant Professor in the field of experimental nuclear physics. This appointment will be in partnership with the Thomas Jefferson National Accelerator Facility (JLab) through the bridge program. JLab will provide 50% of the new faculty member's 9-month salary and benefits for the first 5 years of the tenure-track appointment and in return, the successful candidate will be expected to devote 50% of their 9-month research effort to projects of interest to JLab. Thus, we are seeking an individual with a primary interest in the research program of hadronic and nuclear physics conducted at JLab and potential interest in the proposed Electron Ion Collider. The successful individual will be expected to build a strong research program that will enhance the current programs at UT and JLab. Work will be performed both at the UT campus in Knoxville, Tennessee and at JLab in Newport News, Virginia. This position will require occasional travel to attend conferences and meetings.

Required Application Materials include:

- Cover Letter - In addition to the usual information, candidates may also describe how they envision their participation in the department to work to promote/improve equity & inclusion
- Curriculum Vitae - including research and teaching experience and a list of publications
- Research Statement - articulate a plan for setting up and carrying out a 5-year JLab-focused research program
- Teaching Statement - discuss any relevant prior teaching experience

For full position details & requirements and to submit an application, please go to apply.interfolio.com/115226. Additionally, applicants should also arrange for three letters of reference to be submitted through Interfolio. Only electronic applications in PDF format will be considered. Full consideration will be given to applications submitted by December 1, 2022.

The University of Tennessee is an EEO/AA/Title V/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services. All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status.

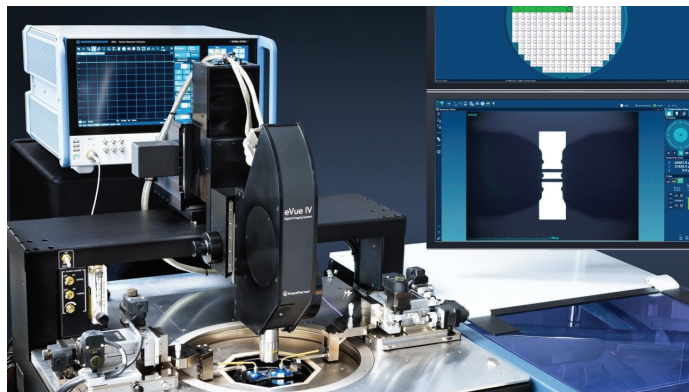


Vacuum and prevacuum pump

With an ultimate vacuum of up to 1.5 mbar absolute at a flow rate of up to 36 L/min, KNF's N 952 diaphragm pump series is a suitable support for advanced analytical instrument applications. Other areas of application include scanning electron microscopy, mass spectrometry, and gas chromatography and analysis. The N 952 pump is powerful, chemically resistant, and oil-free. Its ability to retain a high pumping speed even close to ultimate vacuum makes it appropriate as a prevacuum pump for turbomolecular pumps in research and industry. Supported by new brushless DC motors developed in-house, speed-controlled vacuum performance provides the required vacuum profile and low-vibration operation in drying chambers or heating ovens. Particularly vibration-sensitive systems can be provided for by a stand-alone N 952 version with a separate power switch. **KNF Neuberger Inc**, 2 Black Forest Rd, Trenton, NJ 08691-1810, <https://knf.com>

On-wafer device characterization

Rohde & Schwarz (R&S) now offers semiconductor manufacturers a test solution for on-wafer characterization of the RF design of devices under test early in the development phase and during production. To ensure proper RF capabilities for frequency coverage and output power while optimizing energy efficiency, the test setup combines the company's R&S ZNA vector network analyzer with engineering probe systems from FormFactor. The vector network analyzer characterizes all RF qualification parameters at coaxial and waveguide levels, and frequency extenders for application ranges above 67 GHz. FormFactor examines the wafer contact with manual, semiautomated, and fully automated probe systems including high-frequency probes, probe positioners, and thermal control and calibration tools. FormFactor WinCal XE software calibrates the complete test system, including the R&S ZNA. **Rohde & Schwarz GmbH & Co KG**, Mühldorfstraße 15, 81671 Munich, Germany, www.rohde-schwarz.com



IT'S ALWAYS SAFER TO HAVE BACKUP

KNF LeakTight gas pumps offer ultra-low leak rates of 6×10^{-6} mbar l/s and include a safety back-up diaphragm to prevent leakage even in the event of failure. Optional O-rings and seals are available for added protection against air intrusion.

Let KNF back you up with a safer, more reliable solution.



Learn more at knf.com/en/us/no-escape



UF UNIVERSITY of FLORIDA
The Foundation for The Gator Nation

DIAGNOSTIC MEDICAL PHYSICIST

The Medical Physics Division of the Department of Radiology at the University of Florida is actively recruiting to fill a position at the rank of Clinical Associate Professor of Radiology. The candidate must have a Ph.D. in medical physics, and be certified in Diagnostic Radiological Physics by the American Board of Radiology (ABR), with a minimum of 5 years of experience in academic diagnostic medical physics. A broad experience in all imaging modalities, i.e., x-ray, fluoroscopy, interventional radiology, CT and MRI with emphasis in regulatory compliance, as well as Joint Commission and American College of Radiology testing for the Advanced Imaging modalities is required. A strong educational background, including teaching and directing graduate student research projects, is highly desirable. This is a non-tenure-track position.

The Diagnostic Medical Physics group at the University of Florida is one the most prominent in the southeastern United States, with a faculty compliment of six ABR certified diagnostic and nuclear medicine physicists, providing full physics services to the UF Health hospitals and clinics in Gainesville and Jacksonville. The group also constitutes the core faculty for the Medical Physics graduate program, recently reinvigorated by its move to the College of Medicine, with a body of 42 (26 fully funded Ph.D.) students. UF has one of the few combined diagnostic/nuclear medicine 3-year physics residency and the ideal candidate will be heavily involved in the training of residents.

If you are interested in rewarding position in a friendly, state-of-art environment, please apply via Careers at UF (<http://jobs.ufl.edu>). Attach your C.V. and three letters of recommendation to your application.

Final candidate will be required to provide official transcript to the hiring department upon hire. A transcript will not be considered "official" if a designation of "Issued to Student" is visible. Degrees earned from an education institution outside of the United States are required to be evaluated by a professional credentialing service provider approved by National Association of Credential Evaluation Services (NACES), which can be found at <http://www.naces.org/>.

The University of Florida is an equal opportunity institution dedicated to building a broadly diverse and inclusive faculty and staff.

NEW PRODUCTS

Explosion-proof Roots pumps

Pfeiffer Vacuum has expanded its OktaLine ATEX series of Roots pumps, which are designed for use in potentially explosive environments or for evacuating explosive gases. ATEX certified for low- and medium-vacuum applications, the pumps meet the highest explosion-protection requirements. They are appropriate for chemical, biotechnological, pharmaceutical, and industrial applications, such as in vacuum furnaces and heat treatment. Pumping speeds now range from 280 m³/h to 8100 m³/h. Variable differential pressure and flexible rotational speed make the pumps suitable for universal use; they can all be employed at ambient temperatures ranging from -20 °C to 40 °C. Because of their magnetic coupling, OktaLine pumps are hermetically sealed and achieve the very low leak rates of 10⁻⁶ Pa m³/s. They are resistant to pressure surges of up to 1600 kPa, and there is no risk of zone entrainment. The integrated temperature sensor protects against thermal overload and monitors the gas temperature in the outlet area. *Pfeiffer Vacuum Inc, 24 Trafalgar Sq, Nashua, NH 03063, www.pfeiffer-vacuum.com*



EBSD analysis system

Edax, a unit of the materials analysis division of Ametek, has added the Clarity Super to its electron backscatter diffraction (EBSD) product line. According to Edax, the Clarity sensors provide single-electron detection sensitivity, a superior signal-to-noise ratio, and high dynamic range. Optimized for high performance across a broad range of voltages with an emphasis on efficient data collection, the sensors are suitable for analysis of ceramics and semiconductor materials where lower beam currents are needed, or for applications such as high-resolution EBSD that require superior EBSD pattern quality. The existing Clarity Plus offers electron collection sensitivity down to approximately 7 kV; the new Clarity Super extends that range to 3 kV. It can therefore be used to analyze beam-sensitive samples such as perovskite organic-inorganic solar cells and fine-grained materials where improved spatial resolution is needed. *Edax Inc, 91 McKee Dr, Mahwah, NJ 07430, www.edax.com*

PT



ASSISTANT OR ASSOCIATE PROFESSOR POSITION

The Department of Physics in the College of Science, the University of Texas at Arlington, invites applications for a full-time tenure-track position as an Assistant or Associate Professor in Space Physics.

The Space Physics unit in the department plays an important role for the NASA Geospace Dynamics Constellation (GDC) satellite mission, which focuses on multi-scale spatial and temporal variations of energy inputs and ionosphere-thermosphere coupling. The successful candidate will be able to contribute substantially; either in modeling or data analysis and enhance the research ability of the team in the related area.

In accordance with USCIS regulations, successful applicants must be legally able to accept work in the United States.

To apply applicants should go to <https://uta.peopleadmin.com/postings/20170> (Posting Code: F00346P):

Review of applications will begin immediately and will continue until the position is filled. Questions may be addressed to: Dr. Yue Deng (yuedeng@uta.edu)

www.uta.edu/academics/schools-colleges/science/departments/physics

PRECISION MEASUREMENT GRANTS

The National Institute of Standards and Technology (NIST) anticipates awarding two new Precision Measurement Grants that would start on 1 October 2023, contingent on the availability of funding. Each award would be up to \$50,000 per year with a performance period of up to three years. The awards will support research in the field of fundamental measurement or the determination of fundamental physical constants. The official Notice of Funding Opportunity, which includes the eligibility requirements, will be posted at www.Grants.gov.

Application deadline is tentatively **February 2023**.
For details/unofficial updates see: physics.nist.gov/pmg.

For further information contact:

Dr. Joseph N. Tan, Ph.D.

NIST Precision Measurement Grants Program

100 Bureau Drive, Mail Stop 8422

Gaithersburg, Maryland 20899, U.S.A.

Email address: joseph.tan@nist.gov

NIST National Institute of
Standards and Technology
U.S. Department of Commerce