March 2023, ISSUE 116

WELCOME

What's the oldest electronic or mechanical device you own that's still in operation? I bought a Panasonic VCR in 1982 that still works. The "remote control" is tethered to the device by a cable, and it only supported 13 manually tuned channel buttons, but many other VCRs have come and gone in the past four decades and that one can still be counted on when a later-model player gives up the ghost.

Rigaku has been selling analytical X-ray instruments for over 75 years, and many of our diffractometers and spectrometers have remained in service for a long time. In 2002, we were pleased to award the Generator Longevity Award to Dr. Elspeth Garman at the University of Oxford. Her RU-200 rotating anode X-ray generator (affectionately dubbed Myrtle) had rolled over its hours-of-operation meter (99,999.9 hours) and was still generating X-rays.

This year, Rigaku is celebrating the fiftieth anniversary of the introduction of the world's first benchtop X-ray diffractometer, the MiniFlex, which originally recorded X-ray intensity on a chart recorder. Since then, the MiniFlex has undergone generations of improvements. If you would like to send us a picture of you with your MiniFlex or a short video where you discuss your research results with MiniFlex, please visit the MiniFlex Anniversary page.

50th MiniFlex ANNIVERSARY

Fifty years ago, Rigaku launched the MiniFlex, the world's first benchtop XRD. At the time, the concept was revolutionary—it was much smaller and cheaper than anything else on the market. Now in its sixth generation, it has amassed over 43000 references in papers and patents, and it continues to be one of Rigaku's most popular products amongst its vast portfolio, satisfying the needs of academic research and teaching as well as industrial testing and quality control.

Since its introduction, the MiniFlex has consistently evolved and continually sets the standard with new innovations, despite the imitators that have come along over the years. This is a testament to the dedication of Rigaku's R&D team and their response to customer feedback and commitment to innovation.
Visit the MiniFlex Anniversary page>

FEATURED ARTICLES

nature research custom media

How X-rays are empowering better batteries
New X-ray diffraction tools are supercharging the search for superior lithium-ion battery materials.
Read more >

Peering into batteries at the push of a button
X-ray diffraction technology developed at Rigaku can deliver critical data about working lithium-ion batteries without the need for synchrotron radiation
Read more >

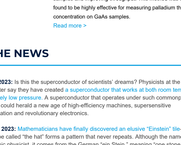
UPCOMING WEBINARS

IN-DEPTH OVERVIEW OF THE USE OF X-RAY DIFFRACTION (XRD) IN THE INVESTIGATION OF ASBESTOS AND RESPIRABLE SILICA

Crystalline silica is one of the most common minerals in the earth's crust and can occur in various polymorphic phases. Although these materials appear harmless, they can become hazardous when exposed to external actions such as grinding, sawing, cutting, etc. Respirable crystalline silica (RCS) is converted into extremely small particles of a few micrometres that can cause respiratory diseases. Health and safety regulations for workers dealing with silica and asbestos are very strict. For example, respirators must be routinely analysed to determine the amount of material present.

In this context, X-ray diffraction (XRD) is one of the most important techniques for detecting and quantifying even small amounts of these hazardous substances.
Date/time
Tuesday, April 25, 2023 09:00 AM CET
Tuesday, April 25, 2023 04:00 PM CET
Register >

RIGAKU NEWS



This May, Rigaku Innovative Technologies Europe s.r.o. (RITE) will celebrate 15 years since it was established in 2008. The decision to acquire the company was based on the unique technology they were producing. Today, RITE's high-resolution X-ray cameras have the highest spatial resolution on the market, and our rotational symmetric replicated optics find more and more customers in the fields of EUV and soft X-rays. Today, we would like to present our 15th anniversary logo. Leading up to the official event at the end of May, we will present information about RITE. So, happy birthday RITE!

Rigaku Extends Partnership with Internationally Recognized CBRNe Program at University of Rome Tor Vergata

Rigaku Analytical Devices is pleased to announce a renewed partnership with the University of Rome Tor Vergata, in collaboration with their local representative, ABCS Srl. The program, known as CBRN Gate, provides education, training, and research activities related to global safety and security, in which Rigaku's handheld Raman analyzer product line is used for the identification of potential chemical threats. CBRN Gate is part of their International Master Course titled "Protection Against Chemical, Biological, Radiological, Nuclear and explosive (CBRNe) Events," and is property of the Health Safety Environmental Association of Rome (HESAR) Association. HESAR's focus is to increase environmental protection and public safety and security, as well as improving the quality of life, workplace and the ecological system.
Read more >

FEATURED APPLICATION NOTES

Silicone Coating on Paper and Plastic
Applied Rigaku Technologies

Paper and plastic are coated with a thin layer of silicone as a release coating in the manufacturing of labels, tape, or other adhesives or as a barrier coating for protection against air in the packaging of food, medical products, and other materials. During the coating process, the amount of silicone coating must be periodically measured to ensure the proper physical properties of the product. Simple to operate, Rigaku's NEX QC+ gives QC technicians an ideal tool for quickly checking silicone coat weight to maintain the highest product quality with minimal costs.
Read More >

Pd Measurement on GaAs Wafer
Rigaku Semiconductor Metrology Division

This report shows the utilization of micro-spot ONYX 3000 capabilities for measuring palladium in GaAs samples using a unique detector array and helium purge to efficiently remove air (argon) from the X-ray path. A controlled helium flow removes the argon from the volume above the sample, resulting in a clear palladium Lα energy peak. Using helium does not require a load lock chamber for vacuum, allowing measurement of large samples and improving throughput. This method was tested and found to be highly effective for measuring palladium thickness or concentration on GaAs samples.
Read more >

IN THE NEWS

March 7, 2023: Is this the superconductor of scientists' dreams? Physicists at the University of Rochester say they have created a superconductor that works at both room temperature and relatively low pressure. A superconductor that operates under such commonplace conditions could herald a new age of high-efficiency machines, supersensitive instrumentation and revolutionary electronics.

March 24, 2023: Mathematicians have finally discovered an elusive "Einstein" tile—a 13-sided shape called "the hat" forms a pattern that never repeats. Although the name conjures up the iconic physicist, it comes from the German "ein Stein," meaning "one stone," referring to the single tile. Although the tiles fit neatly together and can cover an infinite plane, they are aperiodic, meaning they can't form a pattern that repeats.

March 28, 2023: Recent discoveries by a team at MIT have revealed that introducing new materials into existing concrete manufacturing processes could significantly reduce the material's carbon footprint, without altering concrete's bulk mechanical properties.

March 28, 2023: Trace quantities of protein residue– especially egg yolk—have long been detected in classic oil paintings, though they were often ascribed to contamination. A new study published in Nature Communications found the inclusion was likely intentional—and sheds light on the technical knowledge of the Old Masters, the most skilled European painters of the 16th, 17th, or early 18th century, and the way they prepared their paints.

March 29, 2023: Could grinding up lithium batteries help to recycle them? Researchers at Karlsruhe Institute of Technology, Germany, used mechanochemistry—the initiation of a chemical reaction by mechanical force from grinding or milling—to recover lithium from lithium-ion batteries.

PODCASTS

The Opioid Matrix is a podcast for anyone looking for the latest information in the illegal drug supply chain—beginning to end. Each episode will feature a discussion with industry experts about the current opioid crisis, including drug trafficking, drug manufacturing, drug identification, drug addiction, as well as the role of government, law enforcement, new health and social programs, and more.
Listen to New Episodes >

Understanding Semiconductors: Modern Metrology from Lab to Fab, is a podcast for engineering leaders in characterization, metrology, process, and analytics, looking for discussion around semiconductor metrology challenges. Each episode will feature a conversation with technology experts about problems facing the semiconductor metrology industry.
Listen to New Episodes >

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