

Press Release

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The August 2019 edition of *The Bridge*, the Materials Science newsletter from Rigaku, is now online

Issue 74 of The Bridge newsletter from Rigaku focuses on materials science and is available from the company's website

August 30, 2019 – The Woodlands, Texas. The August 2019 edition of [The Bridge](#), the materials science newsletter from [Rigaku Corporation](#), is now available online on the company's global website. *The Bridge* presents current news and analysis techniques related to X-ray based materials science and includes articles, scientific papers and news reports.

The newsletter begins with special report on the 68th annual Denver X-ray Conference ([DXC](#)). Held annually in the U.S., DXC is the world's largest X-ray conference and was held as a joint meeting with the 25th International Congress on X-ray Optics and Microanalysis ([ICXOM-25](#)).

The featured article explores the sub-atomic scales at which the Rigaku Innovative Technologies division ([RIT](#)) typically work. One of the core technologies at RIT is the vacuum deposition of multilayers, a critical parameter of which is how small the individual layers are.

The featured X-ray diffraction ([XRD](#)) Application Note describes high speed reciprocal space mapping (RSM) of an epitaxial film using a one-dimensional (1D) detector in still mode. The example presented demonstrates how this process can quickly and effectively reveal characteristics affecting device performance of silicon germanium (SiGe) transistors.



Rigaku ZSX Primus III+ high power, tube above, sequential WDXRF spectrometer

This month's wavelength dispersive X-ray fluorescence ([WDXRF](#)) application note details the analysis of iron (Fe) Nickel (Ni) and Cobalt (Co) – based alloys by the Fundamental Parameter Method using the [Rigaku ZSX PrimusIII+](#) WDXRF spectrometer. These alloys, including high-temperature alloys, tool steel, and stainless steel, have broad ranges of concentrations for many elements and are analyzed during production control by X-ray fluorescence (XRF) spectrometry.

An energy dispersive X-ray fluorescence ([EDXRF](#)) application note from Applied Rigaku Technologies, Inc. ([ART](#)) presents the analysis of copper (Cu) and iron (Fe) on nuclear power station cooling water filters. Excessive metal content can contribute to corrosion in the piping used in the cooling systems in power plants. The cooling water is monitored for excessive metal content using both Millipore and Cation filters.



A new application note from Rigaku Analytical Devices ([RAD](#)) demonstrates aseptic identification of Polysorbates using a handheld Raman spectrometer. Polysorbates are used in a variety of industries including food, cosmetics, pharmaceuticals and biopharmaceuticals. Due to industry regulations and quality standards, it is considered good practice to identify incoming materials prior to manufacturing.

Each month “Material Analysis in the News” presents a collection of the latest global news stories related to materials analysis. One story features a report about the rapid prediction by of a team of Japanese researchers of the microstructure of alloys commonly used in the design of jet engine turbine parts. Such predictions have so far been time-consuming and expensive. The findings have the potential to greatly advance the design of materials used to make products in several different industry sectors.

Another news story reports that Researchers at the Institute for Integrated Cell-Material Sciences at Japan's Kyoto University claim to have developed a dye-sensitized solar cell with 10.7% efficiency. In their study, published in the *Journal of the American Chemical Society*, the scientists claim the device is the most efficient technology available for dye-sensitized cells with fused porphyrin sensitizers.

Also included in the latest edition of *The Bridge* are 25 recently published scientific papers and a featured video highlighting the collaboration between the Japan Aerospace Exploration Agency ([JAXA](#)) and Toyota Motor Corporation ([Toyota](#)) on international space exploration, along with a book review and other information relating to the latest developments in materials science.

Readers can subscribe to the newsletter or view the current issue online at <https://www.rigaku.com/subscribe>

About Rigaku

Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on general-purpose analytical instrumentation and the life sciences. With hundreds of major innovations to their credit, Rigaku companies are world leaders in X-ray spectrometry, diffraction, and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,400 people in the manufacturing and support of its analytical equipment, which is used in more than 90 countries around the world supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities.

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