

Press Release

Issue 75 of *The Bridge*, the Materials Science newsletter from Rigaku, is online

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The September 2019 edition of The Bridge newsletter from Rigaku, focusing on materials science, is available from the company's website

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

The featured article covers a new software feature developed to enable easier, more accurate X-ray fluorescence ([XRF](#)) analysis in cases where analysis lines overlaps with higher order lines, making peak identification and semi-quantitative analysis less reliable. The software performs semi-quantitative analysis by the FP method using a new procedure, allowing anyone, including users with little experience in X-ray analysis, to obtain analysis results with higher precision and reliability.

This month's featured *X-ray diffraction* ([XRD](#)) technical note describes material characterization by Pair Distribution Function (PDF) and Radial Distribution Function (RDF) analysis. These analyses can derive atomic distances and atomic coordinates from an X-ray diffuse scattering pattern regardless of the crystallinity of the materials.

A *total reflection X-ray fluorescence* (TXRF) application note presents the analysis of trace elements in environmental water. In the described method, sample preparation is simple, requiring only pipetting the liquid sample onto a carrier. Multiple elements can be analyzed simultaneously using the internal standard method without preparing calibration curves. The TXRF method has advantages in time and cost compared to conventional analysis methods.

As regulations limiting the sulfur content of fuel used in the marine industry continues to evolve, the energy dispersive X-ray fluorescence ([EDXRF](#)) note demonstrates the analysis of sulfur and metals in bunker fuel and marine diesel.

Another application note presents the analysis of large meso-Pentafluorophenyl-substituted expanded porphyrins. The structures of these large twisted compounds are difficult to predict. Precise structure can only be determined by way of single crystal X-ray structure analysis.

A review of [The Second Kind of Impossible: The Extraordinary Quest for a New Form of Matter](#) by Paul J. Steinhardt is also featured. The book is an account of the author's thirty-five-year-long quest to challenge the conventional notion that scientists knew all the conceivable forms of matter, exploring the possibilities of new materials with never before seen properties.

The featured video of the month video presents a behind the scenes look at CERN, the European Organization for Nuclear Research that operates the largest particle physics laboratory in the world.

A schedule of upcoming conferences and workshops is included, along with *Recent Scientific Papers of Interest*, a monthly compilation of material analysis papers, presents 20 new papers appearing in recently released journals and publications.

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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