

## Press Release

Rigaku Corporation  
9009 New Trails Drive  
The Woodlands  
Texas 77381 USA

# Winter 2020 Edition of the Rigaku Journal Features Latest X-ray Analysis Techniques and Applications

*The latest issue- Vol. 36 No. 1 - of the Rigaku Journal is available to download from the company's website.*

**February 25, 2019 – The Woodlands, Texas.** [Rigaku Corporation](#) has published its latest edition of the [Rigaku Journal](#), which is available for download from the company's global website.

The Rigaku Journal is a scientific and technical journal published by Rigaku to serve the X-ray analysis community. It is a semiannual journal, publishing articles covering a wide range of X-ray diffraction ([XRD](#)), X-ray fluorescence ([XRF](#)) and other analytical applications.

The latest issue includes five new technical articles, including a feature describing the characterization of lithium-ion battery materials using the [Rigaku SmartLab](#) X-ray diffractometer. The demand for lithium-ion batteries continues to grow and X-ray diffraction is considered one of the most effective analytical techniques for evaluating their ever-improving performance.

Another article presents the theory, and application examples, of pair distribution function (PDF) analysis. In recent years, PDF analysis has been used to characterize material structure in a wide range research fields.

Two new articles related to analysis of materials in cement include an overview of the use of XRD in cement analysis, along with the introduction of its different applications. As a rapid analysis method for crystalline



*Rigaku SmartLab multipurpose X-ray diffractometer (XRD) with advanced Guidance software*



phases, X-ray diffraction can be applied to identify components of clinker and cement, in addition to quantitative analysis by Rietveld refinement, because the four major components are contained in clinker as crystalline phases.

Another paper describes the analysis of free lime in clinker, and introduces the [Rigaku Simultix 15](#) simultaneous wavelength dispersive X-ray fluorescence (WDXRF) system, equipped with a free lime diffraction channel, enabling both XRF analysis and free lime quantification by XRD.

An article describing the evaluation of microelectromechanical systems (MEMS) by X-ray fluorescence spectrometers for thin films is also featured. Among the thin film inspection methods employed in the manufacture of semiconductor products, XRF spectrometers are used in many processes due to the capability to non-destructively perform simultaneous film thickness/composition analysis, with no contact and no sample preparation.

Finally, an application of the [Rigaku nano3DX](#) X-ray microscope for biological specimens is presented. Because biological systems generally have hierarchical structures, the observation of such systems varies in size range, depending on whether one is observing tissue level structures, cellular structures or molecular structures. In the new report, X-ray imaging of structures that range in size down to sub-micrometers is discussed.

New product features, describing the [Rigaku XtaLAB Synergy](#) X-ray diffractometer platform and its capabilities, as well as newly developed [Rigaku TMA8311/LR](#) thermomechanical analyzer (TMA) with refrigerated cooling unit are also included.

The complete issue, individual articles, and back issues are available for download at no cost at [www.rigaku.com/journal](http://www.rigaku.com/journal)

## 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.

For further information, contact:

Michael Nelson  
Global Marketing Coordinator  
Rigaku Corporation  
[michael.nelson@rigaku.com](mailto:michael.nelson@rigaku.com)

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