

Press Release

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

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Issue 71 of The Bridge newsletter from Rigaku focuses on materials science and is available from the company's website

May 31, 2019 – The Woodlands, Texas. The May 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, including articles, scientific papers and news reports.

The featured article explores the advantages of using an SQL database for measurement and analysis result data. The SQL database provided with the Rigaku [SmartLab Studio II](#) software centralizes measurement and analysis result data.

This month's featured X-ray diffraction ([XRD](#)) technical note describes phase identification and orientation analysis for a thin film solid oxide fuel cell (SOFC) material using a 2D detector. Phase identification is sometimes difficult by ordinary XRD, but using a 2D detector is shown to enable fast confirmation of the orientation of each crystal phase.

The wavelength dispersive X-ray fluorescence ([WDXRF](#)) application note describes the analysis of platinum (Pt), rhodium (Rh) and palladium (Pd) in used automobile catalysts and demonstrates that they can be quantified reliably at trace level concentrations using the pressed powder method and [Rigaku ZSX Primus](#) series spectrometers.

The energy dispersive X-ray fluorescence ([EDXRF](#)) application note details measurement of lead (Pb) in gasoline using the Bismuth (Bi) internal standard method Part C (ultra-low lead for MoGas, motor gasoline) and Part A (high Pb for AvGas, aviation gasoline). The method highlights the performance of the Rigaku NEX QC+ EDXRF analyzer using direct excitation for the measurement of lead by ASTM D5059 - Standard *Test Methods for Lead in Gasoline by X-Ray Spectroscopy* - as well as for many other applications in the petroleum and fuel industries.

Another application note describes the analysis of toxic trace elements in wastewater by *total reflection X-ray fluorescence* (TXRF). The method offers the advantage of avoiding much of the effect of interference of matrix components, compared to *induced coupled plasma optical emission spectrometry* (ICP-OES) analysis.

"Material Analysis in the News" presents roundup of the latest global news stories related to materials analysis. One news story describes the mission of Japan's Hayabusa probe to an asteroid in 2003. Approximately seven years later, it returned to Earth's surface with a sample of the space rock stowed inside. Those samples have been the subject of much interest in the scientific community, and now a new research paper reveals that the tiny specks of material contain water, something that could also tell us a



Rigaku ZSX Primus IV tube-above wavelength dispersive X-ray fluorescence spectrometer

lot about our own planet.

Another news story reports on efforts by scientists at the University of Fribourg, Switzerland, and Japan's Hokkaido University to develop stress-indicating molecules that can be integrated into polymers and signal damages or excessive mechanical loads optically. Its use will aid in predicting when a material will fail under mechanical stress.

As always, recently published scientific papers are presented, along with a book review, a featured video, a schedule of conferences and workshops, 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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