Accepted: 21 November 2023
DOI: 10.1002/xrs.3413

News Article

X-RAY SPECTROMETRY WILEY

Kenji Sakurai, News Editor

Correspondence
Email: kenji.sakurai@sakuraixlab.com

Denver X-Ray Conference Awards (August 9, 2023)

The following awards were presented during the 72nd Annual Denver X-Ray Conference, held August 7–11 at The Westin Chicago Lombard, Lombard, Illinois, USA. The Barrett Award, given biennially to recognize the outstanding contributions to the field of powder diffraction, was presented to Dr. Ashfia Huq (Sandia National Laboratories, USA) for her commitment to and leadership in the advancement of spallation neutron powder diffraction, and for her service to the neutron powder diffraction community. The Jenkins Award, given biennially to recognize scientists who exhibit lifetime achievement in the advancement of the use of X-rays in materials analysis, was presented to Dr. Tim Elam (University of Washington, USA) for his contributions to X-ray fluorescence spectrometry in the development of instrumentation and methods of X-ray analyses in challenging environments, including the PIXL micro-XRF spectrometer on the Mars rover Perseverance. The award also recognized his many contributions to educating and teaching others in the field of X-ray spectroscopy. The Hanawalt Award, recognizing distinguished, recent work in the field of powder diffraction, was presented to Dr. Karena Chapman (Stony Brook University, USA) for her contributions in developing X-ray diffraction capabilities in the study of challenging materials problems in sustainable energy and environmental remediation. For more information, visit the Web page, http://www.dxcicdd.com/

The 17th Asada Award (october 21, 2023)

The recipient of the 17th Asada Award, which is presented by the Discussion Group of X-ray analysis, Japan, in memory of the late Professor Ei-ichi Asada (1924–2005) to promising young scientists in X-ray analysis fields in Japan, is Hitomi Nakano (Horiba Techno Service Co., Ltd.), "Optimization of X-ray optical system in microscopic X-ray fluorescence analyzer and application to internal non-destructive analysis"). The ceremony was held at Tokyo City University during the 59th Annual Conference on X-Ray Chemical Analysis.

How to cite this article: K. Sakurai, *X-Ray Spectrom* **2024**, *53*(1), 87. https://doi.org/10.1002/xrs.3413

Accepted: 18 January 2024
DOI: 10.1002/xrs.3419

News Article

X-RAY SPECTROMETRY WILEY

Kenji Sakurai, News Editor

Correspondence
Email: kenji.sakurai@sakuraixlab.com

First beam at the Japan's new synchrotron (December 7, 2023).

The first beams have been successfully observed at the BL13U and BL10U undulator beamlines of NanoTerasu, Japan's new 3 GeV synchrotron source currently under construction at the Aobayama campus of Tohoku University in Sendai, Japan. The facility is scheduled to officially open in April 2024. For more information, visit the Web page, https://nanoterasu.jp/

How to cite this article: K. Sakurai, *X-Ray Spectrom* **2024**, *53*(2), 159. https://doi.org/10.1002/xrs.3419

Accepted: 18 March 2024

DOI: 10.1002/xrs.3424

News Article

X-RAY SPECTROMETRY WILEY

Kenji Sakurai, News Editor

Correspondence
Email: kenji.sakurai@sakuraixlab.com

Deciphering Burnt and Carbonized Scroll Books with Deep Learning-Assisted X-ray Imaging (February 5, 2024).

There is a program called the Vesuvius Challenge in which investors are funding the deciphering of what was written in the extremely fragile scrolls that were carbonized when Mount Vesuvius erupted in 79 A.D., some 2000 years ago (https://scrollprize.org/). Pompeii is famous for the eruption of Mount Vesuvius, which was buried by volcanic ejecta, etc. Not only Pompeii, but also towns near Mount Vesuvius were buried in the same way. The city of Herculaneum is one of them. The scrolls discovered in Herculaneum in the 1750s are one of the most important research subjects. Looking back in history, one would immediately think of using non-destructive methods of analysis such as X-rays, but in the days before the discovery of X-rays, this was obviously not possible. The method of dismantling the scrolls was unavoidable, and it seems that actual dismantling was done. Afterwards, they were probably restored by hand, but it is still difficult to read the text on them. In 2015, other ancient scrolls, though not from the Vesuvius eruption, were successfully read by X-ray imaging without touching them at all. A commercially available micro X-ray CT device was used (for details, see the paper, William Brent Seales, Clifford Seth Parker, Michael Segal, Emanuel Tov, Pnina Shor, and Yosef Porath, “From damage to discovery via virtual unwrapping: reading the scroll from En-Gedi”, Science Advances, 2, e1601247 (2016). https://doi.org/10.1126/sciadv.1601247). Using X-ray imaging, it is possible to read the inside of a scroll-like book without touching it to open it and reveal its contents. The Vesuvius Challenge program appears to have been inspired by this 2015 success story. Furthermore, while X-ray CT simply images three-dimensional electron density contrasts, deep learning techniques can be used to read text from them (for details, see the paper, Yannis Assael, Thea Sommerschield, Brendan Shillingford, Mahyar Bordbar, John Pavlopoulos, Marita Chatzipanagiotou, Ion Androutsopoulos, Jonathan Prag and Nando de Freitas, “Restoring and attributing ancient texts using deep neural networks”, Nature 603, 280–283 (2022). https://doi.org/10.1038/s41586-022-04448). Recently, the Vesuvius Challenge experiment was conducted using the imaging beamline of the Diamond Light Source synchrotron radiation facility in the UK to collect a large number of 3D CT images of carbonized scrolls. Deep learning was used to decipher the text.

Eventually, the first success was achieved, although only a small part of the text was deciphered. What was written on the scroll turned out to be a philosophical statement about sensation and pleasure. It was announced that three 21-year-old graduate students from Egypt, Switzerland, and the U.S. were awarded $700,000 for their success in using X-rays to decipher what was written in such extremely fragile ancient burnt scrolls. For more details, see the article “First passages of rolled-up Herculaneum Scroll revealed”, Nature 626, 461–462 (2024). https://doi.org/10.1038/d41586-024-00346-8

How to cite this article: K. Sakurai, *X-Ray Spectrom* **2024**, *53*(3), 212. https://doi.org/10.1002/xrs.3424

