Requests for Collaboration

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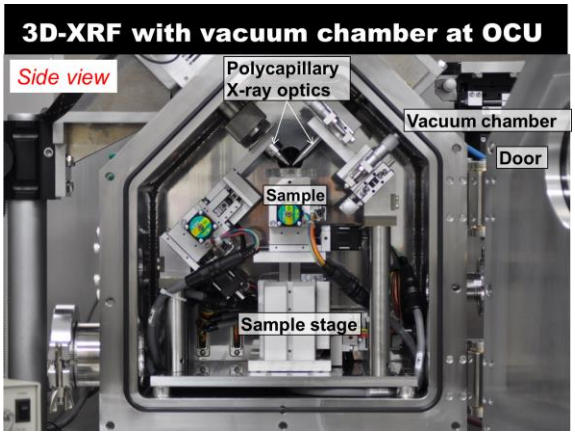
Research Interests

- X-ray fluorescence analysis (XRF)
- XRF imaging and Total reflection XRF (TXRF)
- Glow discharge optical emission spectroscopy

Creative Achievements in The Application of New and Existing Science and Technology

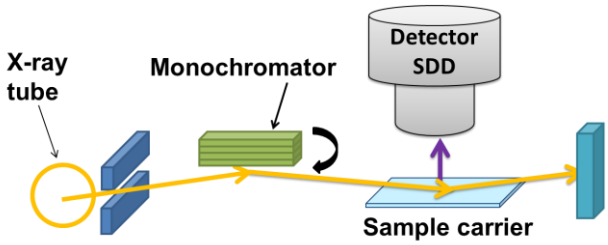
(1) Scanning type 3D XRF imaging

A confocal micro XRF instrument was developed as shown in the right upper figure. This analytical technique enables visualization of elemental distribution in the sample by scanning the sample. This technique has been applied to forensic science, industrial analysis, environmental and biological analysis. Also, it was applied for liquid-solid interface analysis.



(2) Full field type XRF imaging

A single photon counting was applied for obtaining XRF elemental maps by using x-ray 2D detector. In this case, multiple elemental maps are simultaneously obtained without scanning. In addition, WDXRF imaging spectrometer was developed. This technique is useful for fast XRF imaging in a few seconds.



(3) Standardization of TXRF

As convener of ISO/TC201/SC10/WG1, standardization of TXRF (right bottom figure) analysis has been discussed and developed.

Technology (Product, Process, Device, Service etc.) That I Want to Request for Collaboration

- Application of XRF imaging to industries, biological and medical samples
- Application of TXRF for trace elemental analysis

A List of 5 Key Publications

- K. Tsuji, N. Yomogita, Y. Konyuba, Sample Preparation for Total Reflection X-ray Fluorescence Analysis Using Resist Pattern Technique, *Spectrochim. Acta Part B*, **144** (2018) 68-74.
- S. Aida, T. Matsuno, T. Hasegawa, K. Tsuji, Application of principal component analysis for improvement of X-ray fluorescence images obtained by polycapillary-based micro-XRF technique, *Nucl. Instrum. Methods Phys. Res., Sect. B*, **402** (2017) 267-273
- K. Tsuji, et al, New developments of X-ray fluorescence imaging techniques in laboratory, *Spectrochim. Acta Part B*, **113** (2015) 43-53.
- T. Nakazawa and K. Tsuji, Development of a high resolution confocal micro-XRF instrument equipped with a vacuum chamber, *X-Ray Spectrom.*, **42** (2013) 374-379.
- K. Tsuji, T. Ohmori, M. Yamaguchi, Wavelength Dispersive X-ray Fluorescence Imaging, *Anal. Chem.*, **83** (2011) 6389-6394.