

The developments of new types of micro-XRF spectrometer focused by polycapillary optics

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In this presentation, we will report the developments of micro-X-ray fluorescence and micro-X-ray diffraction spectrometers focused by polycapillary optics in our Lab recently. A portable micro energy dispersive X-ray fluorescence spectrometer with Laser Displacement Sensor (LDS) is reported in this paper. Due to irregular or curved surface of archaeological object, the distances between the irradiation spot of sample and exit of polycapillary X-ray optics can vary. In this paper, we employed a LDS in our portable micro-X-ray fluorescence spectrometer to control the distances between the irradiation spot on the sample and the exit of polycapillary X-ray optics in order to decrease the errors caused by the irregular or curved surfaces of samples. In order to test this spectrometer, elemental mapping analyses were carried on with and without LDS on an irregular colored glaze of a piece of curved ancient porcelain, the height difference of two parts of ancient porcelain being nearly 5 mm. From the results, it can be concluded that this spectrometer has potential application prospects in measuring irregular or curved surface of samples.

On the other hand, a new type of micro-X-ray diffraction spectrometer is shown also.

Abstract Type

Talk

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