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Element-Sensitive Computed Tomography by Fine Tuning of PXR-Based X-ray Source

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To demonstrate the element-sensitive computed tomography (CT), CT scanning experiments were carried out for several specimens containing strontium using a parametric X-ray (PXR) beam having energies near the Sr K-shell edge of 16.1keV. The three-dimensional distributions of Sr were successfully obtained from the difference between the CT images taken on opposite sides of the absorption edge. The result suggests that the measurement method is effective for elemental analysis of considerably thick samples and could be a method complementary to X-ray fluorescence analysis.

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