X-ray Diffraction Imaging of the Standard Blocks of Vickers Hardness

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Conventional X-ray diffraction measures the total sum of the diffraction intensities of the entire sample. But by applying the reflection projection imaging method [1], the intensity of diffraction from each point on the sample can be obtained. The standard hardness pieces are made of a homogeneous material, but they are distorted after the indentation. The distortion which varies near the indented position is need to evaluate by imaging. We will report the strain and stress distribution of the hardness test pieces near indented position by reflection projection X-ray diffraction imaging.

[1] K. Sakurai and M. Mizusawa, Anal. Chem., 82, 3519 (2010).