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Parametric X-ray Radiation from Powders

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Parametric X-ray Radiation (PXR) from a tungsten powder was registered during the interaction of the target with a 7 MeV electron beam. The tungsten powder presents a purity of 99,987 % and is constituted of crystallites which average size is between 0.8 and 1.7 μm. The radiation was registered by silicon drift detectors under observation angles of 150° and 180° regarding the velocity of the incident electrons. PXR peaks from the crystallographic planes (110), (200), (211), (220), (310) и (222) were clearly observed simultaneously.
The experimental results show a good agreement with the theory [1] in both geometries for all the PXR peaks for the first time. In previous works, the influence of texture [2,3] and composition of the target [4] caused a disagreement of the observed relative intensity of the PXR peaks with the theory.

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