

Size Anisotropy and Lognormal Size Distribution in the Powder Diffraction Whole Pattern Fitting

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The approach developed by Popa and Balzar [1] to model the size broadening in powder diffraction patterns by samples with lognormal size distribution of spherical crystallites can be easily extended to include size anisotropy if the crystallite shape is approximated by an ellipsoid.

In comparison with the existing approaches using ellipsoids to describe the size anisotropy, this approach uses a peak breadth symmetrized according to the crystal Laue class.

The proposed model was tested on a zinc oxide diffraction pattern measured in a Bragg – Brentano geometry. The model is compared with the previously proposed model using spherical harmonics to describe the size anisotropy [2].

[1] Popa N. C., Balzar D., *J. Appl. Cryst.*, 2002, **35**, 338-346. [2] Popa N. C., *J. Appl. Cryst.*, 1998, **31**, 176-180.

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