

Colloquium Notice

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Information Volume of Diffraction from a Nanoparticle

100-plus years of theoretical and experimental advances have reduced kinematical scattering formalisms for powder diffraction to routine, vendor-supplied, black-box analysis programs accessible to users at all training levels. Understanding what really goes on in the analysis, however, is a non-trivial task. We used computer modeling to analyze the powder diffraction process from nanoparticle ensembles.

Our results showed, surprisingly, that the classical formulations described in diffraction textbooks were inadequate; venerable concepts like reflection multiplicity, the "Lorentz factor", sampling statistics, etc. actually depended on the size of the crystalline particles contributing to the diffraction profile. We expect modeling of scattering experiments to yield more surprises as the phase space hidden behind canonical assumptions becomes accessible for exploration.

Monday

April 11, 2016

Starts at 12:15 PM

Coffee at 12:00 PM

Physics Conference Room, SB B326