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**Quantifying amorphous and crystalline phase content with the atomic pair distribution function** JOSEPH PETERSON, New Mexico State University, JAMES TENCATE, Los Alamos National Laboratory, THOMAS PROFFEN, Oak Ridge National Laboratory, TIMOTHY DARLING, University of Nevada, Reno, HEINRICH NAKOTTE, New Mexico State University, KATHARINE PAGE, Los Alamos National Laboratory — Pair distribution function (PDF) analysis has been a long established technique for studying the local structure of amorphous and disordered crystalline materials. In today's increasingly complex materials landscape, the coexistence of amorphous and crystalline phases within single samples is not uncommon. Though a couple of reports have been published studying samples with amorphous and crystalline phases utilizing PDF analysis, to date little has been done to determine the sensitivity the method currently has in resolving such contributions. Here we conduct a series of experiments on samples with known ratios of crystalline quartz and amorphous glassy silica to examine this question in detail. We propose systematic methods to obtain the best possible resolution in samples with unknown phase ratios and we discuss some problems one might encounter during analysis.

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