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An initial analysis of short- and medium-range correlations potential non-Pt catalysts in CoNx JOE PETERSON, HEINZ NAKOTTE TEAM, TIMOTHY OLSON TEAM, ANNA LLOBERT COLLABORATION, THOMAS PROFFEN COLLABORATION — A potential show stopper for the development of fuel cells for the commercial automotive industry is the design of low-cost catalysts. The best catalysts are based on platinum, which is a rare and expensive noble metal. Our group has been involved in the characterization of potential materials for non-Pt catalysts. In this presentation, I will present some preliminary neutron scattering data from a nanocrystalline powder sample of CoNx. It is apparent that the diffraction data cannot be analyzed with standard Riedveld refinement, and we have to invoke pair distribution function (PDF) analysis. The PDF provides insight into short-range correlations, as it measures the probabilities of short- and mid-range interatomic distances in a material. The analysis reveals a strong incoherent scattering response, which is indicative of the presence of hydrogen in the sample. After correcting for the incoherent scattering, one obtains the normalized scattering function S(Q), whose Fourier transform yields the PDF.

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