

Abstract Submitted
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Probing the Intermediate Range Order in Novel Rare Earth Phosphate Glasses Using Neutron Diffraction MUSTAFA RAJABALI, KANISHKA MARASINGHE, University of North Dakota, RICHARD BROW, NATHANIEL WYCKOFF, University of Missouri - Rolla, CHRIS BENMORE, JOAN SIEWENIE, QIANG MEI, ROBERT HART, Argonne National Laboratory - IPNS — Neutron diffraction has been used to study the atomic structure and especially the coordination environment of rare earth ions for $(x)\text{R}_2\text{O}_3 (1-x)\text{P}_2\text{O}_5$, where R is praseodymium or neodymium and x ranges between 0.05 and 0.28. Such information can help further developing these exciting materials for potential optical and magnetic applications. In the case of neodymium containing samples, the method of isotopic substitution was used to measure the first order difference function involving only neodymium correlations. Merits of this technique as applied to rare earth phosphate glasses as well as the dependence of the atomic structure on the R/P ratio will be discussed.

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