

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Diffraction studies of short- and intermediate-range order of phosphorus-selenium glasses DAVID PRICE, ALEKSEI BYTCHKOV, MARIANA MILOSHOVA, EUGENE BYCHKOV, SHINJI KOHARA, LOUIS HENNET — We present state-of-the-art neutron and X-ray diffraction data that provide a definitive picture of the short- and intermediate-range structure of P-Se glasses spanning both glass regions. Specific goals were (1) to obtain detailed information about the development with increasing of intermediate-range order on the length scale around 10 Å, based on the behavior of the first sharp diffraction peak; and (2) to obtain a reliable statistical picture of the short-range order, using the information about types and concentrations of local structural units provided by recent NMR measurements to interpret the trends observed as the P concentration is varied. Particular attention is given to the fine structure of the first peak in the pair distribution function and to a feature in the structure factor at 7.5 \AA^{-1} , highlighted by Sergi et al. as a signature of molecular units.

David Price

Date submitted: 27 Dec 2010

Electronic form version 1.4