

## **Intermediate Range Chemical Ordering in H<sub>2</sub>O, Si and Ge under Pressure**

Chris J. Benmore<sup>a</sup>, R.T. Hart<sup>a</sup>, Q. Mei<sup>a,b</sup>, D.L. Price<sup>c</sup>, J. Yarger<sup>b</sup>, C.A. Tulk<sup>c</sup>, D.D. Klug<sup>d</sup>, <sup>a</sup>*Argonne Argonne National Laboratory, Argonne, IL, 60439 USA.* <sup>b</sup>*University of Wyoming, Department of Chemistry, Laramie, Wyoming 82071-3838, USA.* <sup>c</sup>*HIFR and SNS project, Oak Ridge Oak Ridge National Laboratory, Oak Ridge TN 37831, USA.* <sup>d</sup>*National Research Council of Canada, Ottawa, Ontario K0A 0R6, Canada.* E-mail: benmore@anl.gov.

Neutron and x-ray diffraction data for low, high and very high density amorphous and liquid water, silicon and germanium have been compared in terms of the first sharp diffraction peak in the structure factor and at the radial distribution function level. The low density amorphous and high density liquid forms of water, Si and Ge are shown to have very similar structures if the contributions from the hydrogen correlations in water are neglected. The very high density liquid forms of Si and Ge are also analogous, but differ slightly from amorphous and liquid water by the way in which the interstitial atoms or molecules are pushed into the nearest neighbour shell. Both the low and very high density forms show a higher degree of chemical ordering compared to the high density form.

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