Structure of Liquid and Amorphous Selenium by Pulsed Neutron Diffraction Using an Electron LINAC(Physics)

Computer simulations have been carried out to generate dense random packed hard sphere (DRPHS) models composed of two different-sized spheres. The minimum Si-Si pair distance and the degree of tetrahedral perfection were used as adjustable parameters in this model's construction. A good structural model obtained suggests that Si atoms are not in hard contact with Si atoms in amorphous $Pd_{0.8}Si_{0.2}$.

γ-ray Compton Profiles of Liquid Alkali Metals

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Inst. Phys. Conf. Ser., **30** (1977), 181.

Compton profiles of lithium and sodium metals in both the liquid and solid states were measured by using a Ge(Li) detector and 59.54 keV γ-rays emitted from ^{241}Am. The theoretical Compton profiles were calculated for conduction electrons in the liquid metals by means of a free-electron model. Careful comparisons were then made between the experimental profile deconvoluted with an instrument resolution function and the theoretical profile convoluted with a residual instrument function. It was found that the experimental Compton profile for liquid sodium is in good agreement with the theoretical free-electron model but for liquid lithium, the experimental deviates a little from the theoretical. A small difference of Compton profiles between the liquid and solid states may be interpreted in terms of the free-electron model based on a change in the electron density upon melting.

Structure of Liquid and Amorphous Selenium by Pulsed Neutron Diffraction Using an Electron LINAC

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Inst. Phys. Conf. Ser., **30** (1977), 531.

Structure factors of liquid and amorphous selenium were measured over a range of the scattering vector as wide as 0.5 to 30 $Å^{-1}$ by means of time-of-flight neutron diffraction using hot pulsed neutrons generated by an electron LINAC. Based on experimental observation of the structure factor in the high-scattering-vector region which is mainly attributed to the intramolecular correlation, a disordered-chain model which has both helical- and ring-type arrangements in a single molecule has been proposed for the structure of the molecule in liquid and amorphous selenium.

X-Ray Diffuse Scattering in N-Methylphenazinium-Tetracyanoquinodimethane (NMP-TCNQ)

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Commun. Phys., **2** (1977), 159.

X-ray diffuse scattering measurements of NMP-TCNQ at room temperature reveal some parts of diffuse lines at heights ($l \pm 0{:}094n$) a^* from the b^*-c^* plane (l and n are integers, and n varies from 0 to 5). These diffuse lines, except those of the 0th