

Time-of-Flight Pulsed Neutron Diffraction of Liquids Using an Electron LINAC(Physics)

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magnetic nickel are measured with He-Ne laser light ($\lambda=632.8\text{nm}$) up to a temperature slightly above the Curie point T_c . The results near T_c can satisfactorily be analyzed on the assumption that the magneto-optical parameters Q_1 and Q_2 are proportional to the magnetization, regardless of whether the magnetization is spontaneous or induced by applied fields. Slight deviations from the proportionality are found at lower temperatures; temperature coefficients of both Q_1 and Q_2 are somewhat larger than those of the spontaneous magnetization.

Measurement of Young's Modulus of Thin Plate by the Composite Vibrator Method

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Nippon Kinzoku Gakkai Shi (J. Jap. Inst. Met.), **41** (1977), 737.

Flexural resonance frequencies of a composite vibrator may approximately be calculated by a simple assumption that the flexural rigidity of the composite vibrator is given by a sum of the flexural rigidities of the components. This can be applied to the measurement of Young's modulus of a thin plate or a thin film, which cannot be tested by the flexural resonance technique unless pasted or deposited on a thicker substrate. Some experiments are made to justify the above assumption. In general, the effect of a layer of paste is found to be appreciable. Even if the flexural rigidity of the paste is negligibly small, the spacing due to the paste causes appreciable changes in the flexural rigidities of the specimen plate and the substrate. As an example, Young's modulus of a nickel plate $40\ \mu\text{m}$ in thickness is determined by the composite vibrator method with an error of less than 3%.

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Nucl. Instrum. Methods, **147** (1977), 519.

A time-of-flight pulsed neutron diffractometer for the measurement of liquid and amorphous structures was built using a pulsed neutron source installed at the Tohoku University 300 MeV electron linac. Procedures for converting the scattered neutron intensity observed as a function of the time of flight of neutrons into the structure factor have been given and performances of the diffractometer including energy integration paths, weighting functions and resolutions have also been discussed. The result of CCl_4 liquid is shown as an example of the measurement and the structure of a single CCl_4 molecule in the liquid state is compared with other experimental observations.

A Proposed Structure Model for Amorphous $\text{Pd}_{0.8}\text{Si}_{0.2}$ Alloy

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Amorphous Magnetism II, ed. by R.A. Levy and R. Hasegawa, Plenum (1977), 521.