High-pressure neutron diffraction experiments of ice at TAKUMI in J-PARC using Palm cubic anvil apparatus

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In-situ neutron diffraction measurements of hydrogen-ordered phase of ice VI were performed at J-PARC using a clamp-type high-pressure devise, palm cubic anvil apparatus. The results indicate that the hydrogen-ordered phase of ice VI would be ferroelectric. This might be a new phase of ice. Not only in icy grains and icy bodies’ surface, but also in icy bodies’ interior, ferroelectric ice, which posses the ability to carry a charge, might exist.

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