

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



SMP045-08

Room:301B

Time:May 24 16:00-16:15

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

Masashi Arakawa^{1*}, Hiroshi Fukazawa², Hiroyuki Kagi¹, Kazuki Komatsu¹, Riko Iizuka¹, Jun Abe², Hiroshi Arima², Takanori Hattori², Asami Sano², Wataru Utsumi², Takuo Okuchi³, Yoshiki Ohno⁴, Shigeo Sasaki⁴

¹The University of Tokyo, ²Japan Atomic Energy Agency, ³Okayama University, ⁴Gifu University

In-situ neutron diffraction measurements of hydrogen-ordered phase of ice VI were performed at J-PARC using a clamp-type high-pressure device, 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 possesses the ability to carry a charge, might exist.

Keywords: ice, high pressure, hydrogen ordering, neutron diffraction