

SMP057-09

Room: 301A

Time: May 23 15:43-15:56

High Pressure experiments using high-intensity pulsed neutron at "TAKUMI" in J-PARC

Jun Abe^{1*}, Arima Hiroshi¹, Takanori Hattori¹, Kazuki Komatsu², Asami Sano¹, Masashi Arakawa², Takuo Okuchi³, Hiroyuki Kagi², Hiroshi Fukazawa¹, Wataru Utsumi¹

¹JAEA, ²Grad. School Sci. Univ. Tokyo, ³ISEL, Okayama Univ.

The Engineering Materials Diffractometer "TAKUMI" has been constructed in the Materials and Life Science Experimental Facility (MLF) of J-PARC. TAKUMI is the neutron powder diffractometer which intended to estimate stress in engineering components. The optical system and the sample stage of TAKUMI are well adapted to high-pressure experiments. In order to confirm the feasibility of high-pressure neutron diffraction at TAKUMI, we have performed a number of R&Ds using a Paris-Edinburgh Press and a Palm cubic anvil cell. As results, diffraction patterns coming from small samples embedded in these high-pressure devices have been obtained. In addition, in situ neutron diffraction of ice at high-pressure and low-temperature conditions (ca. 1 GPa, >20 K) has been performed. Recently, the further R&Ds have been done; optimization of materials such as anvil and pressure medium, developments of focusing mirror, reduction of background & contamination noise. In this presentation, we report current states and experimental results.

Keywords: neutron diffraction, high pressure