

## Introduction to a newly funded research project on hydrous minerals by neutron diffraction measurements at high T-P conditions

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Hydrogen is the most abundant element in the solar system and the planet, Earth, is characterized by the existence of water. Hydrogen atoms are fixed in minerals through the minerals-water interaction and even small amount of hydrogen influences physical and chemical properties of minerals. It is a fundamental issue in mineralogy to understand how hydrogen atoms are fixed in minerals. To determine accurate hydrogen positions in minerals by X-ray is one of challenging experiments due to its weak scattering power, especially at high pressure and high temperature conditions. Instead, it is well known that measurements with neutron diffraction methods have a big advantage to overcome some technical difficulties.

Now we have the newly available intense pulsed neutron facility in Japan Proton Accelerator Research Complex (J-PARC) and our 5 years project, Earth Science Based on the High Pressure and Temperature Neutron Experiments, supported by Grant-in-Aid for Scientific Research (Scientific Research on Innovative Areas) has just started. In this talk, I will present a brief introduction to general ideas of the hydrous minerals group in this project. Members of the hydrous minerals group are Prof. Akasaka M. (Shimane Univ.), Dr. Fukazawa H. (JAEA), Dr. Kuribayashi T. (Tohoku Univ.), Dr. Utsumi W. (JAEA), Prof. Kamiyama T. (KEK) and I (Hokkaido Univ.).