

Report for the Joint Use/Research of the Institute for Planetary Materials, Okayama University

2022 fiscal year first term / second term / others

30/05/2023

Category: International Joint Research / General Joint Research / Joint Use of Facility / Workshop

Name of the research project: Pressure generation in large-volume press by using 1-inch sintered diamond anvils

Principal applicant: Shuangmeng Zhai

Affiliated institution and department: Institute of Geochemistry, Chinese Academy of Sciences

Collaborator

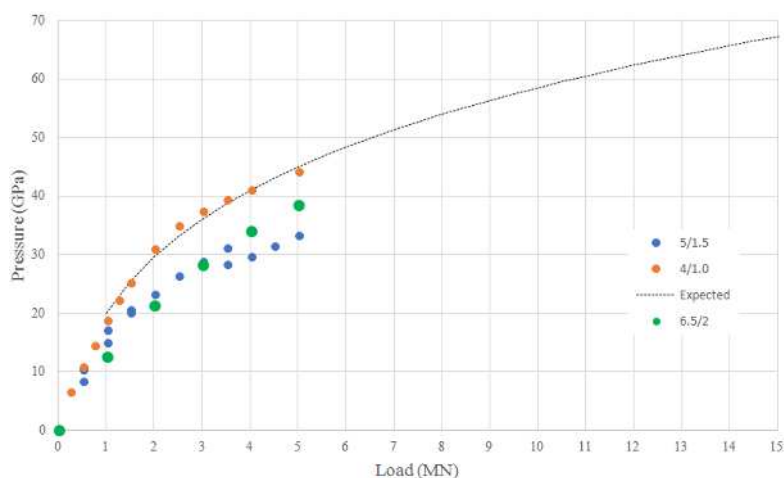
Name: Daisuke Yamazaki

Affiliated institution and department: Institute for Planetary Materials, Okayama University

Research report:

The research purpose is to generate high pressure using 1-inch sintered diamond anvils and investigate the content of phosphorus in bridgmanite.

Three experiments with 6.2/2, 5/1.5 and 4/1 sample assemblies were conducted at BL04B1 beamline of SPring-8, and the generated pressures were determined based on Tsuchiya's Au scale, as shown in the following figure. The results were orally presented at the 21st Chinese High-Pressure Science Conference on 14th May 2023.



On the other hand, some high-pressure and high-temperature experiments were carried out in IPM to investigate the content of phosphorus in bridgmanite. The run products were checked by XRD and SEM. Since the grain size of bridgmanite is too small, further analysis for chemical compositions by ATEM will be conducted at GRC, Ehime University.