Towards the study of high-pressure Earth science using neutron diffraction

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Strong X-ray generated by the synchrotron radiation played very important role in the last decade for the advancement of high-pressure Earth science. Likewise, strong neutron radiation, which will be generated from the new facility in J-PARC, is expected to play very important role for high-pressure Earth science. Because, it is difficult to see hydrogen by X-ray and so far we know very little about the behavior of hydrogen and water in the Earth's deep interior, while it will become possible to see it using the neutron diffraction. For this purpose it is necessary to make collaboration of people in various field and from last year we have started a new project through the collaboration of people in Earth science, high-pressure science, neutron science, and materials science. The outline of the project and the perspective will be discussed.