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Magma Studies towards Pulse Neutron Utility

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The proposal of Grant-in-Aid for Scientific Research on Innovative Areas "Neutron Earth Science" was succeeded in the autumn of 2008, and one of the scientific research group "Magma group" is doing efforts for various exploratory experiments to make it possible to do coming Neutron experiment under high pressure and high temperature. The aim of our group is to understand magma activity in the earth interior through the understanding of the structure and physical properties of the magma with and without water. Our target material includes iron melt. Through these studies, we would like to establish "High P&T Neutron Magma Science". The scientific target is mainly divided into three groups; 1) structure of magma, 2) physical properties of magma, and 3) state observation of magma. In the present stage, the preliminary experiments and the development of the experimental technique are necessary. So we are conducting these studies by divided into two technical groups; 1) "Neutron scattering experiment" group and 2) "Neutron imaging experiment" group. In this talk, we will introduce our recent developments for the above issues.

Keywords: magma, water, neutron scattering, neutron imaging