

High Pressure Neutron diffraction experiments - Experiences in ISIS and ILL

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The Paris-Edinburgh cell would be the most crucial technical progress with respect to high pressure neutron science. Over 15 years have passed since the beginning of the experiment in ISIS, pulsed neutron spallation source in UK. The developments of the Paris-Edinburgh cell allow us to observe structure from both crystals and glasses/liquids under high/low temperature and pressure. The achievable pressure using Paris-Edinburgh cells is up to 30 GPa for samples of 30mm³ size. That pressure range has not been drastically updated for long time. The high brilliance of the neutron source and the focusing devices will allow us to take diffraction from smaller samples. It means that the achievable pressure range will be expanded. In this paper, an outline of the high pressure neutron experiments in ISIS and ILL, the reactor neutron source in France are shown in order to make clear the technical problem which should be solved for the experiments in J-PARC.