

s6.m1.o5 **Structure of Liquids at High Pressure Probed by X-ray Diffraction.** M. Mezouar, S. Bauchau, G. Blattman, *ESRF, B.P. 220, 38000 Grenoble*
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Notes

The determination by X-ray diffraction of the evolution at high pressure and high temperature of inter-atomic distances, and number of first neighbors of disordered systems (liquids, amorphous materials), is of great importance in various domains such as material science or geophysics. In particular, it has been recently shown that liquids exhibit under high pressure a much more complex behavior than previously expected. For instance, a first order phase transition (sharp transition with large volume change) that are usually only observed in the solid state has been clearly evidenced in liquid phosphorus. More generally, it is remarkable that the structural relations between polymorphs in the solid and in the liquid state is poorly understood. This lack of information on the structure of liquid at high pressure is mostly due to experimental difficulties : i.e. low and diffuse signal, high background, high chemical reactivity of liquid phases at high temperature. In order to overcome this difficulties a Soller slit system has been developed at beamline ID30, ESRF. Preliminary results on liquid tin obtained with this new device interfaced to the Paris-Edinburgh large volume press and a fast detector based on image-plates will be presented.