

## Structure and dynamics of Liquids under High Pressure

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The determination by x-ray diffraction and inelastic scattering techniques of the atomic arrangements and dynamics of liquids at high pressure is of great importance in various domains such as materials science or geophysics. This is mostly due to the fact that the relative density change induced by applying high pressure can be orders of magnitude higher than that achievable by temperature variations. Moreover, it has been recently shown that liquids under high pressure exhibit a much more complex pattern of behaviour than previously expected. For example, a first order phase transition (sharp transition with large density change) that is usually observed only in the solid state has been clearly evidenced in liquid phosphorus [1]. More generally, it is remarkable that the structural and dynamical relation between the polymorphs in the solid and in the liquid state is poorly understood. In order to study the relation between structure and dynamics of liquids at high pressure, a joint effort is currently under way at beamlines ID16 and ID30, ESRF. Recent results obtained on liquids phosphorus and sulphur will be presented.

### Reference

[1]Katayama et al., Nature, 403, 170 (2000)