

MS42-P13 | STUDYING MOLECULAR CRYSTALS AT HIGH PRESSURES: EXPERIMENTAL STRATEGY AND HARDWARE MATTERS

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The studies under extreme conditions offer insight into the fine structural changes that occur as a function of temperature or pressure variations. Molecular crystals are of special interest both from fundamental and applied point of view. Many of them are promising as pharmaceuticals, materials for electronics, optics and soft robotics. Despite new developments in high-pressure instrumentation and diffraction techniques, the quality of diffraction data and a way of performing diffraction experiment still remain critically important for obtaining reliable information on crystal structure behavior at high pressures.

In this contribution several examples of single-crystal studies at high pressures on laboratory and synchrotron facilities will be discussed. In each of the examples pressure variation protocol, data collection time, hardware and facility type influenced strongly not only the quality and completeness of experimental data, but even the crystal structures of resulting high pressure phases. Advantages and disadvantages of different instrumentation will also be discussed along with information which high-pressure single-crystal X-ray diffraction can provide for studying solid state processes.

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