Phase diagrams, which show the preferred physical states of matter at different temperatures and/or pressure, are available for many common substances near ambient conditions. The number of previously unidentified polymorphic phases increases considerably even for “well known” compounds (see Fig. 1) if the technique of high-throughput in-situ synchrotron powder diffraction in combination with fast 2D-detectors is applied. The main problem is related to the enormous amount of data which need to be processed efficiently. Techniques to solve part of this problem [2] are presented during the talk.


Keywords: in-situ powder diffraction, phase transitions, phase diagram