Are well known Phase Diagrams really well known ?

Robert E. Dinnebier, *Max-Planck Institute for Solid State Research. Heisenbergstrasse 1, 70569 Stuttgart, Germany.* E-mail: r.dinnebier@fkf.mpg.de

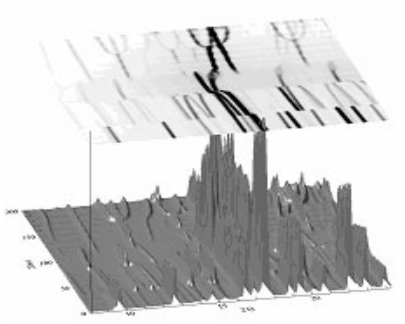

Fig. 1: Temperature dependent powder patterns of RbC_2O_4 [1].

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 unidenti-fied 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.

[1] Dinnebier R.E., Vensky S., Hanson J., Jansen M., *Chem. Eur. J.,* 2005, **11**, 1119. [2] Hinrichsen B., Dinnebier R.E., Jansen M., 2005, *in preparation.*

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