

## MS23-P04 | WILL PdPb CONFIRM THE PREDICTION THAT ITS STRUCTURE IS MODULATED?

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Recently, crystals of PdPb were successfully grown. Preliminary room temperature data shows a triclinic modulated structure with a q-vector ( $1/2 \ 0.245 \ 1/2$ ) similar to that of AuIn at room temperature.

The structure of AuIn was elucidated not long ago, showing its structural changes with temperature [1]. Interest in AuIn grew since it proved harder to grow single crystals from this material than expected and since its differential scanning calorimetry (DSC) data shows one solidification peak but two melting peaks. With the DSC data at hand, growth of a single crystal was possible and temperature dependent diffraction data could be obtained. This data revealed that AuIn, believed to be of the TII type [2], actually only shows the TII structure above the temperature of 443°C and at lower temperatures undergoes a Peierls type like distortion before becoming incommensurate [1].

PdBi emerges to be a similar case, with atomic positions of the reported high temperature phase structure corresponding to the TII type structure [3]. Also the DSC measurement shows the same behaviour as for AuIn. As expected, a synchrotron study of PdBi shows that the structure transforms from a commensurate super structure, via an incommensurate structure, to a disordered structure between room temperature and 300°C.

[1] Folkers, Simonov, Wang, Lidin, *InorgChem.*, **57**, (2018), 2791.

[2] Schubert, Rösler, Kluge, Anderko, Härle, *Naturwissenschaften*, **40**, (1953), 34

[3] Zhuravlev, *Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki'*, **5**, (1957), 1064.