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LTP I: Ordered and disordered binary beryllium pnictides: between Zintl polyanions and Grimm-Sommerfeld compounds

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In solid-state chemistry, there is an intriguing number of binary systems lack characterization, especially in combination with the element beryllium. The limited knowledge promises a rich and unusual structural chemistry of this element. The few results concerning Be pnictides include the disordered diamond-like structure of BeP2. Preliminary work based on qualitative evaluation of powder X-ray diffraction data of BeAs2 and BeSb2 indicates related structures for both compounds. Precise structural data require very accurate diffraction data due to the large difference in scattering factors. Despite the simple stoichiometry, complete structural analysis proved difficult as the crystals obtained are much too small for laboratory data collection. We now employed a combined approach using microfocused synchrotron radiation, electron diffraction and HRTEM.

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