

The magnetic structure of EuPdSn

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The TiNiSi-type structure, antiferromagnetic ordering and divalent state of europium in EuPdSn have been confirmed by neutron powder diffraction. The Néel temperature is 16.2(3) K. The magnetic diffraction peaks can be indexed with a propagation vector $\mathbf{k} = [0, 0.217, q_z]$, ($q_z \leq 0.02$) at 13.2 K, $\mathbf{k} = [0, 0.276, 0]$ at 3.6 K, indicating an incommensurate antiferromagnetic structure at both temperatures. At 13.2 K, the best refinement is obtained with a sinusoidally modulated magnetic structure and europium magnetic moments

oriented in the (a, b) plane with an azimuthal angle ϕ of $66(4)^\circ$ relative to the a -axis. By 3.6 K, the magnetic structure of EuPdSn has transformed to an (a, b) planar helimagnetic structure (a ‘flat spiral’).

Reference

- [1] P Lemoine *et al* 2012 *J. Phys.: Condens. Matter* **24** 236004 [doi:10.1088/0953-8984/24/23/236004](https://doi.org/10.1088/0953-8984/24/23/236004)

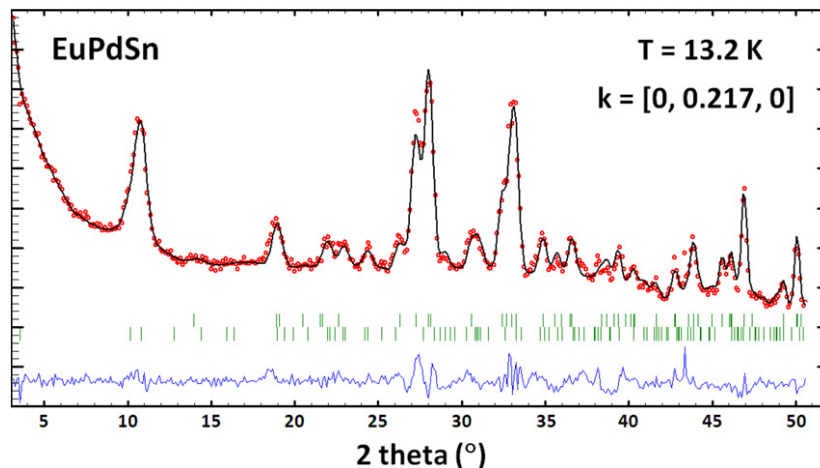


Fig. 1 Refinement of the powder neutron diffraction pattern of EuPdSn obtained at 13.2 K with $\lambda = 1.3286(1)$ Å.

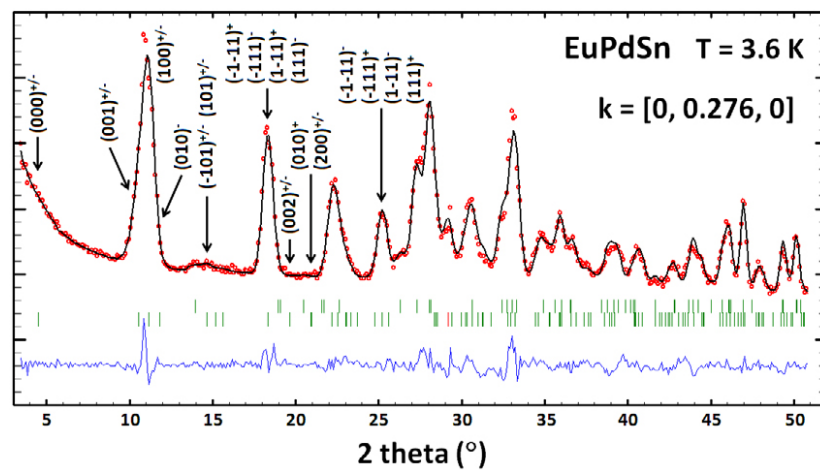


Fig. 2 Refinement of the powder neutron diffraction pattern of EuPdSn obtained at 3.6 K with $\lambda = 1.3286(1)$ Å.