Abstract Submitted
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Synthesis, magnetic and transport properties of new ternary silicide $EuPd_3Si_2$.[1] SHIVANI SHARMA, MASOUD MARDANI, KEKE FANG, KAYA WEI, RYAN BAUMBACH, THEO SIEGRIST, National High Magnetic Field Laboratory — More than a hundred ternary borides, gallides and silicides are known which crystallize with a great variety of structure types which can be derived from the hexagonal $CaCu_5$ type (hexagonal, *P6/mmm).* However, till today, none of the ternary silicide is reported being formed using Pd and Eu. We have recently synthesized single crystals and powder sample of the new phase $EuPd_3Si_2$. Single crystal data confirms that $EuPd_3Si_2$ crystallizes in orthorhombic symmetry with space group *Imma* (pseudohexagonal) at room temperature. The lattice parameters are a = 7.1463(3), b = 10.0711(4), c = 5.7469 (2) Å. The energy dispersive X-ray spectroscopy measurements on the polycrystalline pellet further confirm the stoichiometry to be $EuPd_3Si_2$. Bulk magnetization and specific heat measurements have been performed on single crystals, indicating ferromagnetic order at a temperature T_C of 78 K. A metamagnetic transition is observed near 5 K in both the magnetization and specific heat data, and resistance measurements on single crystal sample also exhibit a signature at T_C, consistent with magnetic long-range order.

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