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PHASE DIAGRAMS OF Ce 2 Pd 2 In INTERMETALLIC COMPOUND

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Thanks to the specific electronic structure the rare earth-based compounds, especially those containing Yb, Ce or Eu, often exhibit exceptional magnetic properties. In our study we have focused on cerium-based compound Ce 2 Pd 2 In belonging to the family of R 2 T 2 X compounds crystallizing in tetragonal Mo 2 FeB 2 -type structure. Previous studies revealed presence of two magnetic phase transitions (�� C ≈ 4.1 K and �� N ≈ 4.5 K) and strong dependence of magnetic ground state on the changes of chemical composition [Giovannini, PhysRevB2000].
We present the pressure-temperature phase diagrams both for hydrostatic and uniaxial pressure. Hydrostatic pressure acts in the same way on the whole lattice, while the uniaxial one allows to act solely in the chosen direction. The results are put into context with temperature evolution of crystal lattice investigated by low temperature X-ray diffraction. Based on these results, hydrostatic pressure is supposed to act more on the a-parameter, which leads to approaching of atoms in the basal plane, affecting the exchange interactions in the system and preference antiferromagnetic phase over the ferromagnetic one. On the other hand, the uniaxial pressure acts on the parameter c showing no significant effect on the temperatures of phase transition.

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