

Abstract Submitted
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Superconductivity in $(\text{La}_{1-x}\text{Th}_x)\text{PtSi}$ and $\text{LaPt}_{1-x}\text{Si}$ systems¹

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— As revealed in the powder x-ray diffraction and crystallographic data, the partial substitution of La with Th in $(\text{La}_{1-x}\text{Th}_x)\text{PtSi}$ is able to be systematic up to the solubility limit near $x = 0.5$ and the parent compound LaPtSi admits considerable vacancies up to 20% on the Pt sublattice while still retaining its tetragonal symmetry. The refined lattice parameters show that both the c-axis and the volume of the unit cell v shrink clearly due to the doping with Th or the existence of vacancies in the compound. These results are consistent with what one would expect from a chemical pressure effect. We will present the static magnetization and specific heat data for these pseudo-ternary compounds investigated in the necessary temperature range. Discussion of the change in the superconducting critical temperature T_c will be directed toward the changes of electron number density as well as the lattice parameters with respect to pure LaPtSi .

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