

Abstract Submitted
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Superconductivity in the new Platinum Germanides $\text{APt}_4\text{Ge}_{12}$ ($\text{A}=\text{Sr},\text{Ba},\text{La},\text{Pr}$) HELGE ROSNER, ROMAN GUMENIUK, WALTER SCHNELLE, MICHAEL NICKLAS, ANDREAS LEITHE-JASPER, YURI GRIN, Max-Planck-Institute for Chemical Physics of Solids Dresden, Germany — New germanium-platinum compounds with the filled-skutterudite crystal structure were synthesized. Magnetic susceptibility, specific heat, and electrical resistivity measurements find superconductivity in $\text{LaPt}_4\text{Ge}_{12}$ and $\text{PrPt}_4\text{Ge}_{12}$ below ca. 8 K. The parameters of the normal and superconducting states were established. Strong electron-phonon coupling and a crystal electric field singlet groundstate is found for the Pr compound. Electronic structure calculations show a large density of states at the Fermi level, predominantly due to Ge $4p$ orbitals. Similar behavior, albeit with lower T_c , was observed for $\text{SrPt}_4\text{Ge}_{12}$ and $\text{BaPt}_4\text{Ge}_{12}$.

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