

Phonon-mediated Superconductivity Enhanced by Magnetism

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I would talk about the discovery of pressure-induced superconductivity in a magnetically ordered $\text{CeTe}_{1.82}$. At ambient pressure, $\text{CeTe}_{1.82}$ has a charge-density-wave transition at $T_{\text{CDW}} \sim 1000$ K, a short-range ferromagnetic ordering below $T_{\text{SRF}} = 6.1$ K, and a long-range antiferromagnetic transition at $T_{\text{N}} = 4.3$ K. With increasing pressure, a superconducting transition temperature $T_{\text{C}} \sim 3$ K (well below the magnetic ordering temperatures) is newly found above 2 kbar. The mixed magnetic structure of antiferromagnetism coexisting with ferromagnetism can provide a clue for this high T_{C} . A possible theoretical model for the superconducting pairing mechanism will be discussed.

Keywords : pressure-induced superconductivity, magnetism, charge density wave