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## Pressure induced superconductivity in a CeRhSi<sub>3</sub> single crystal –high pressure study

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Pressure-induced superconductivity in CeRhSi<sub>3</sub> and CeIrSi<sub>3</sub> has attracted a significant attention for unconventional nature of the superconductivity in a non-centrosymmetric lattice. All previous results, however, were limited to maximum 3 GPa of applied pressure. We focus on a high-pressure-region behavior of the pressure-induced superconductivity in CeRhSi<sub>3</sub>. Our study was performed employing the good-quality Sn-flux-grown single-crystal (electrical current along [110]) and Bridgman anvil cell allowing to apply pressures up to 6 GPa. The initial shift of antiferromagnetic transition to higher temperatures with applied pressure, up to 1.1 GPa; emergence of superconductivity at this pressure; subsequent decrease of Néel temperature and increase of SC temperature with further pressure application were followed. The critical SC temperature reaches a maximum at 2.9 GPa. No signs of magnetic transition are observed. Further application of pressure shifts SC to lower temperatures, forming a typical SC dome. The superconductivity is expected to be completely suppressed between 5 and 6 GPa. Measurements in magnetic fields revealed a considerable decrease of critical field above 3 GPa, which exceeds the value of 19 T at the top of SC dome. Presented results are summarized in the completed T-p and H-T phase diagrams, complementing previous results.

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