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【127】 Ferromagnetic quantum critical point protected by nonsymmorphic symmetry in a dense Kondo metal CeSi_{1.97}

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Quantum critical points (QCPs) are windows to fundamental quantum mechanical phenomena associated with universal behaviour. Recently, antisymmetric spin-orbit coupling in noncentrosymmetric systems was suggested to protect ferromagnetic QCPs. A dense Kondo lattice $CeSi_{2-}$, crystallising in a centrosymmetric structure, exhibits ferromagnetic order when Si is replaced with Ag. We report that the Ag-substitution to $CeSi_{1.97}$ linearly suppresses the ferromagnetic order towards a QCP, accompanied by concurrent strangemetal behaviour. Herein, we suggest that, despite the centrosymmetric structure, spin-orbit coupling arising from the local noncentrosymmetric structure, in combination with nonsymmorphic symmetry, can protect ferromagnetic QCPs. Our findings offer a general guideline for discovering new ferromagnetic QCPs.

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