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Ambient Pressure Structural Quantum Critical Point in the Phase Diagram of $(Ca_xSr_{1-x})_3Rh_4Sn_{13}$[1] SWEE K. GOH, Department of Physics, The Chinese University of Hong Kong, D. A. TOMPSETT, Imperial College London, P. J. SAINES, University of Oxford, H. C. CHANG, University of Cambridge, T. MATSUMOTO, M. IMAI, K. YOSHIMURA, Kyoto University, F. M. GROSCHE, University of Cambridge — The quasiskutterudite superconductor $Sr_3Rh_4Sn_{13}$ features a pronounced anomaly in electrical resistivity at $T^* \sim 138$ K. The anomaly is caused by a second-order structural transition, which can be tuned to 0 K by applying physical pressure and chemical pressure via the substitution of Ca for Sr. A broad superconducting dome is centered around the structural quantum critical point. Detailed analysis of the tuning parameter dependence of T^* as well as insights from lattice dynamics calculations strongly support the existence of a structural quantum critical point at ambient pressure when the fraction of Ca is 0.9 (x_c=0.9). This establishes the $(Ca_xSr_{1-x})_3Rh_4Sn_{13}$ series as an important system for exploring the physics of structural quantum criticality and its interplay with the superconductivity, without the need of applying high pressures. Refs: Swee K. Goh *et al.*, Phys. Rev. Lett. **114**, 097002 (2015); Wing Chi Yu *et al.*, Phys. Rev. Lett. (in press, 2015)

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