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**Interplay between charge density wave formation and superconductivity in palladium-intercalated $ErTe_3$** JOSHUA STRAQUADINE, IAN FISHER, Geballe Laboratory for Advanced Materials and Department of Applied Physics, Stanford University, Stanford, CA 94305 — The family of layered rare-earth tritellurides are model systems for studying the interplay between incommensurate CDW states and superconductivity. At ambient pressure, $ErTe_3$ exhibits two sequential CDW transitions, each of which partially gaps portions of the Fermi surface. Here we show, via a combination of diffraction and transport measurements, that Pd intercalation uniformly suppresses both CDW transitions, eventually giving rise to superconductivity for $x > 0.035$. The resulting phase diagram, and the variation of intensity of the superlattice peaks as a function of temperature and Pd concentration, indicate that disorder induced by the Pd intercalation plays an important role in this behavior. We suggest that this material might be a useful analog of other more complex systems that appear to exhibit short-range CDW correlations and superconductivity in their phase diagrams, possibly including the cuprate high-temperature superconductors.

Joshua Straquadine
Stanford University

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