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Fermi Surface Evolution Across Multiple CDW Transitions in RTe_3[1] R.G. MOORE, Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center, Menlo Park, CA 94025, V. BROUET, Laboratorie de Physique des Solides, Universite Paris-Sud, Bat 510, UMR 8502, 91405 Orsay, France, J. LAVEROCK, S. DUGDALE, H. H. Wills Physics Laboratory, University of Bristol, Bristol BS8 1TL, United Kingdom, R. HE, N. RU, I.R. FISHER, Z.-X. SHEN, Geballe Laboratory for Advanced Materials and Department of Applied Physics, Stanford University, Stanford, CA 94305 — The Fermi surface (FS) evolution across multiple charge density wave (CDW) transitions is investigated using angle-resolved photoemission spectroscopy. Low temperature measurements reveal two incommensurate CDW gaps created by perpendicular FS nesting vectors. A larger gap ($\sim$250 meV) arising from a CDW with q_{CDW} $\sim$0.7c* is in good agreement with the expected trend determined from light rare earth members of the bi-layer family of rare earth tritelluride compounds (RTe_3). A second, smaller gap ($\sim$50 meV) is due to a second CDW with q_{CDW} $\sim$0.7a* never before seen in other RTe_3 compounds. The temperature dependence of the FS and the two CDW gaps is characterized.

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Robert Moore
SSRL

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