Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

STM study of $CeTe_3$: contribution of the subsurface lattice ALEKSANDRA TOMIC, JOSH VEAZEY, ZSOLT RAK, CHRISTOS MALLIAKAS, MERCOURI KANATZIDIS, S. D. MAHANTI, STUART TESSMER — We have studied the nature of the surface charge distribution in $CeTe_3$ with scanning tunneling microscopy (STM). At 77 K, the STM topography and Fourier transform show both the atomic lattice of surface Te atoms arranged in a square net and the CDW modulations oriented at 45 degrees with respect to the Te net. In addition, we observe peaks in the Fourier transform that we attribute to atoms lying below the surface Te net. We discuss the possibility of both subsurface Ce and Te as giving rise to this signal; density functional theory calculations indicate that the subsurface Ce atom gives a more significant contribution to the overall tunneling current.

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Date submitted: 21 Nov 2008 Electronic form version 1.4