

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Infrared reflectance of single crystal bismuth in high magnetic fields: strongly correlated physics in the extreme quantum limit** ADAM KONCZ, The University of Akron, ANDREW LAFORGE, University of California, Santa Cruz, ZHIQIANG LI, Columbia University, ALEX FRENZEL, BRENNAN PURSLEY, University of California, San Diego, TAO LIN, XINFEI LIU, JING SHI, University of California, Riverside, SASA DORDEVIC, The University of Akron, DIMITRI BASOV, University of California, San Diego — Infrared reflectance spectra of single crystal bismuth have been measured in magnetic fields as high as 18 T, both parallel and perpendicular to the trigonal axis. Low-field scans with small field steps have produced detailed frequency-field maps of the rich Landau-level transition spectrum. At high fields we observe a dramatic reconstruction of the far-infrared response as quantum confinement effects become dominant. We will discuss these results in the larger context of understanding the quantum-limit physics of strongly interacting electrons in a three-dimensional system.

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Date submitted: 20 Nov 2009

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