Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Infrared study of the metal-insulator transition regime in vanadium dioxide[1] M. M. QAZILBASH, Physics Department, University of California - San Diego, B. G. CHAE, H. T. KIM, IT Convergence and Components Lab, ETRI, Daejeon, Korea, D. N. BASOV, Physics Department, University of California - San Diego — Vanadium dioxide (VO_2) undergoes a metal-insulator transition at $T_c \approx 340$ K. The transition region of a VO_2 film has been studied with infrared ellipsometry and near-normal incidence reflectance between 40 cm^{-1} and 5000 cm^{-1}. The measured optical constants are compared to calculations based on effective medium theories. The anomalies in the frequency and temperature dependence of the optical constants will be presented. The implications of the data for the mechanism of the metal-insulator transition will be discussed.

[1]This work has been supported by US Department of Energy and ETRI.

Muhammad Qazilbash
Physics Department, University of California - San Diego

Date submitted: 18 Nov 2006 Electronic form version 1.4