

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Charge Modification of Vibrational Features in Inelastic Electron Tunneling Spectroscopy LAM YU, JAMES KUSHMERICK, NIST — Inelastic electron tunneling (IET) spectroscopy of Au-decandithiol-Ni atoms-benzenethiol-Au, Au-decandithiol-Au colloids-benzenethiol-Au and Au-decandithiol-benzenethiol-Au junctions are investigated by cross-wire tunnel junctions. Both the IET spectroscopic features' intensities and line shapes are observed to be significantly modified by the presence of a metal-sandwich layer. We attribute the vibronic features modification to the interaction between the metallic electronic levels and molecularly coupled phonons in the molecular junctions. Our results provide experimental insights into understanding the origin of some of the differences observed in two previous molecular IET spectroscopy experiments by Kushmerick et al. (Nano lett. 2004, 4, 639) and Wang et al. (Nano lett. 2004, 4, 643).

Lam Yu
NIST

Date submitted: 14 Nov 2006

Electronic form version 1.4