

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Atomic-Scale Coupling of Photons to Single-Molecule Junctions

SHIWEI WU, Department of Physics and Astronomy, University of California, Irvine, CA 92697-4575, NAOKI OGAWA, Research Center for Advanced Science and Technology, The University of Tokyo, Tokyo 153-8904, Japan, WILSON HO, Department of Physics and Astronomy and Department of Chemistry, University of California, Irvine, CA 92697-4575, USA — The study of optical phenomena at the atomic scale is expected to provide new understanding of molecules and their chemical dynamics. The combination of lasers with a low temperature scanning tunneling microscope (STM) has led to the observation of photo-induced resonant tunneling with sub-molecular spatial resolution for single molecules adsorbed on a solid surface [*Science* **312**, 1362, (2006)]. Furthermore, the irradiation of femtosecond laser pulses into this single-molecule junction defined by STM results in non-linear coupling by two-photon excitation, rather than the single-photon coupling in the case of continuous wave (CW) lasers. These experiments lead to new opportunities by tapping into the unique properties of lasers and the STM.

Shiwei Wu
Department of Physics and Astronomy, University of California
Irvine, CA 92697-4575

Date submitted: 24 Nov 2006

Electronic form version 1.4