

Abstract Submitted  
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**Coverage dependence of carbon induced work-function changes on Au(110) - (2 1).**<sup>1</sup> HOSSEIN Z. JOOYA, ITAMP, Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts 02138, USA, EUNJA KIM, Department of Physics and Astronomy, University of Nevada, Las Vegas, Nevada 89154-4002, USA, DUSTIN A. HITE, KYLE S. MCKAY, DAVID P. PAPPAS, NIST, 325 Broadway, Boulder, Colorado 80305, USA, PHIL F. WECK, Sandia National Laboratories, P.O. Box 5800, Albuquerque, New Mexico 87185-0779, USA, HOSSEIN R. SADEGHPOUR, ITAMP, Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts 02138, USA — The fluctuating dipole moment from diffusing adatoms on ion-trap electrode surfaces is a possible source of motional heating of trapped ions. This diffusion noise varies quadratically with the variation of the surface dipole moment. Experimentally, such dipole moment changes are determined by measuring the variation of the surface work function caused by adatom-surface interactions. In this study, the dependence of the work function on carbon-adatom coverage on Au(110)-(2 1) is investigated. The experimentally measured work-function variation with carbon coverage is compared to calculations making use of a density functional method. The surface dynamics of carbon adatoms is studied by ab-initio molecular dynamics. The contribution of various available adsorption sites on the observed work function is analyzed.

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