Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Photoelectron Spectroscopy of Doped Helium Nanodroplets
OLEG KORNILOV, CHIA WANG, JEONG HYUN KIM, DARCY PETERKA,
OLIVER GESSNER, DANIEL NEUMARK, Lawrence Berkeley Laboratory, UC
Berkeley — Helium nanodroplets are unique in their ability to pick-up foreign species
and facilitate formation of cryogenically cold (0.4 K) virtually unperturbed com-
plexes. These properties stem from the droplets’ superfluid nature and very weak
interaction potential making helium one of the best media for matrix-isolated spec-
troscopy. Variety of methods has already been applied to embedded complexes
including infrared, visible and UV spectroscopy. To complement this picture, in
the present contribution photoelectron spectroscopy is used to conduct a system-
atic study of photoelectron dynamics in He droplets. Droplets doped with rare gas
atoms (Ne, Ar, Kr, Xe) are investigated using tunable VUV light of Advanced Light
Source at LBNL. Indirect photoionization is observed followed by both direct es-
cape of photoelectron and energy loss mechanism of uncertain nature. Prospects for
time-resolved studies of photoelectron dynamics in He droplets are discussed.

Oleg Kornilov
Lawrence Berkeley Laboratory, UC Berkeley

Date submitted: 01 Feb 2008

Electronic form version 1.4