Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Photoelectron Velocity Map Imaging and Density-Functional Investigation of Bismuth and Lead Anions Solvated in Ammonia KRISTEN CASALENUOVO, Department of Physics, Virginia Commonwealth University, Richmond VA, 23284, MOHAMED A. SOBHY, Departments of Chemistry and Physics, The Pennsylvania State University, University Park, PA 16802, J. ULISES REVELES, Department of Physics, Virginia Commonwealth University, UJJWAL GUPTA, Departments of Chemistry and Physics, The Pennsylvania State University, SHIV N. KHANNA, Department of Physics, Virginia Commonwealth University, A.W. CASTLEMAN, JR., Departments of Chemistry and Physics, The Pennsylvania State University, SHIV KHANNA RESEARCH GROUP COLLABORATION, THE CASTLEMAN GROUP COLLABORATION — We present the results of photoelectron velocity map imaging experiments for the photodetachment of small negatively charged Bi_n and Pb_n (n = 1-2) clusters solvated in ammonia using a Nd:YLF 527 nm laser. We report the vertical detachment energies of the observed multiple electronic bands and their respective anisotropy parameters derived from the photoelectron images. Density-functional theory calculations with generalized gradient approximation for the exchange-correlation potential were performed on these clusters to determine their molecular and electronic structures. Calculated ammonia binding energies and electronic charge transfers are used to rationalize the observed mass spectra distributions.

Jose Ulises Reveles
Dept of Physics, Virginia Commonwealth University, Richmond VA, 23284

Date submitted: 01 Dec 2008 Electronic form version 1.4