

Abstract Submitted  
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**Atom selective force measurement with STM** APARNA DESHPANDE, Ohio University, VIOLETA IANCU, Ohio University, SAW-WAI HLA, Ohio University — Scanning tunneling microscope (STM) manipulation and spectroscopy is used to determine the strength of interactions necessary to manipulate individual silver and bromine atoms on a Ag(111) surface at 4.6 K. In order to distinguish between the two types of atoms, we use local atom extraction procedures: bromine atoms are extracted from individual molecules of cobalt porphyrin (5,10,15,20-Tetrakis-(4-bromophenyl)-porphyrin-Co(II)), which are deposited prior to this experiment, by selectively breaking the C-Br bonds with the STM tip. The individual silver atoms are extracted from the native Ag(111) surface by a controlled tip-crash procedure. Then, we laterally manipulate these two atoms using the same STM-tip along the close packed rows of the Ag(111) surface. The tip-height signals during manipulation are recorded as a function of the tip-atom distance, which include the force information necessary to move a halogen atom, bromine, and a metallic atom, silver, on this surface. This work is financially supported by US-DOE grant, DE-FG02-02ER46012.

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