Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Study of Fe atomic chains on Pt(997) vicinal surface ELIJAH AYIETA, Indiana Uni-Purdue Uni, YA.B LOSOVYJ, LSU, CHENG RUIHUA, IUPUI
— The vicinal substrates form the promising templates for low cost effective bottom-up fabrications of nanostructures. A variety of one-dimensional atomic chains can be synthesized on the stepped surfaces. The electronic structure of a vicinal surface plays a significant role in determining the physical properties of atomic chains on stepped surface as well as the surface morphology. The Pt(997) surface is cut 6.5^o of Pt(111)surface forming terraces width of 2nm. The surface of the substrate is then characterized using scanning tunneling microscopy STM and angle resolved photoemission spectroscopy from synchrotron radiation source. The data shows that the surface has uniform steps with no reconstructions. Electron confinement is observed with wave vector perpendicular to the step direction. Fe atomic chains were then carefully deposited on the surface of Pt(997) and then finally characterized The exchange splitting of Fe $3d$ bands is estimated according to the photoemission spectroscopy data.

Elijah Ayieta
IUPUI

Date submitted: 04 Dec 2007 Electronic form version 1.4