Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

**Observation of Peak/Dip Switches of Electric Conductance at Zero Bias Voltage in Pt/Neon/Pt+Fe Tunneling Junction** LIANXI MA, Blinn College, TEXAS A&M UNIVERSITY TEAM — We conducted a tunneling experiment with Pt as one electrode and Pt+Fe as another, where the Fe on Pt is less than a monolayer. The insulation is solid neon and the experiments are carried out at temperatures of 2.3 K and 4.2 K with thickness of the solid neon about 10 angstroms. The tunneling junction is formed by using Lorentz force to push one electrode wire toward the other, which is perpendicular to the first one, while the solid neon had been deposited on them in advance. Since the Pt wire is thin (0.001 inch in diameter) the junction can be regarded as a point. Both I – V and dI/dV – V are recorded with lock – in amplifier. We found that at 2.3 K the dip at zero bias voltage on conductance dI/dV can switch to a peak and back to a dip again at different trials while all the experimental parameters are kept unchanged. As the bias voltage is scanned consecutively, the overall conductance dI/dV increases due to, we suspect, the temperature increase/decrease at tunneling point because of the Ohm heat/cooling pump although such increase/decrease cannot be shown by a nearby thermal couple thermometer. At temperature of 4.2 K, however, such phenomenon has not been observed. The competition between Kondo effect and Coulomb blockade is a reasonable explanation for this peak/dip switch.

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Date submitted: 28 Nov 2009 Electronic form version 1.4