Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Two metal-insulator transitions in Iridates T. DAS, Los Alamos Natl. Lab. — The experimental discovery of metal-insulator transition (MIT) in clean Iridates came as a surprise since electron-electron correlation is known to be weaker than the effective bandwidth of the extended 5d electrons of Iridium ion. Numerous studies indicate that the strong spin-orbit coupling in this system is responsible for the insulating behavior. Theories of MIT include strong coupling spin-liquid, Mott physics or weak-coupling Slater-type spin-ordering. Here we show that there exists another MIT in the spin-orbit density wave channel, which wither coexists with the spin-ordering insulator or phase separated in the parameter space of chemical potential, Coulomb interaction and spin-orbit coupling strength. The results are compared with various experimental data which support this proposal. [1] T. Das, Phys. Rev. Letts. (2012). Work is supported by US DOE.

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Date submitted: 29 Nov 2012 Electronic form version 1.4