

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Microscopic model for the  $\text{Sr}_{n+1}\text{Ir}_n\text{O}_{3n+1}$  Ruddlesden-Popper series of materials** JEAN-MICHEL CARTER, HAE-YOUNG KEE, University of Toronto — The  $\text{Sr}_{n+1}\text{Ir}_n\text{O}_{3n+1}$  family of materials displays an insulator to metal transition as the number of layers ( $n$ ) increases. The presence of large spin-orbit coupling is believed to be a significant ingredient for the novel  $J_{eff} = 1/2$  state found in  $\text{Sr}_2\text{IrO}_4$ . We offer a microscopic tight-binding Hamiltonian with spin-orbit coupling and Hubbard interactions, and compare our results with experimentally observed phases.

Jean-Michel Carter  
University of Toronto

Date submitted: 26 Nov 2010

Electronic form version 1.4