

# Theory Seminar

Monday, October 8, 2007 2:10 PM 831 Pupin Hall

Presented By Andreas Kronfeld, Fermi National Accelerator Laboratory

## "Improved Actions for Heavy Quarks"

Recently we have made several (successful) predictions with lattice QCD of new measurements of D meson decay properties and the mass of the  $B_c$  meson. One of the larger uncertainties comes from discretization effects of the heavy b and c quarks. In this talk I discuss how to estimate these uncertainties, and how to reduce them with an improved action. I present an extension of the Fermilab method for heavy quarks to include all interactions of dimension six in the action. The resulting improved action requires six new interactions and removes (tree-level) discretization errors of order  $a^2 \mathbf{p}^3/m_Q$  and  $a^3 \mathbf{p}^3$ .

