Theory Seminar

Monday, February 22, 2010 2:10 PM 831 Pupin Hall

Vectorlike Confinement and its signatures at the LHC

I will present a broad class of vectorlike confining gauge theories which interact with the Standard Model predominantly via gauge interactions. These theories have a rich phenomenology at the LHC if confinement occurs at the TeV scale, while ensuring negligible impact on precision electroweak and flavor observables. Spin-1 bound states can be resonantly produced via their mixing with Standard Model gauge bosons. The resonances promptly decay to pseudo-Goldstone bosons, some of which promptly decay to a pair of Standard Model gauge bosons, while others are charged and stable on collider time scales. I will focus on two benchmarks as they are representative of the most typical final states in this setup, and highlight the signatures that are unique to vectorlike confinement: 1) A model that is only charged under the electroweak sector, with CHAMP and multi-photon final states, 2) A model that carries QCD charge, with R-hadron and multi-jet final states.

Can Kilic, Rutgers University