Contribution ID: **45** Type: **Parallel Sessions**

Discovering Colorons at the Large Hadron Collider

Saturday, July 7, 2012 10:35 AM (15 minutes)

We investigate the prospects for the discovery of massive hyper-gluons at the CERN Large Hadron Collider with $\sqrt{s} = 14$ TeV. A phenomenological Lagrangian is adopted to evaluate the cross section of a pair of colored vector bosons (colorons, $\tilde{\rho}$) decaying into four colored scalar resonances (hyper-pions, $\tilde{\pi}$), which then decay into eight gluons. We include the dominant physics background from the production of $8g$, $7g1q$, $6g2q$, and $5g3q$, and determine the masses of $\tilde{\pi}$ and $\tilde{\rho}$ where discovery is possible. For example, we find that a 5σ signal can be established for $M_{\tilde{\pi}}$
$alt495$ GeV ($M_{\tilde{\rho}}$
$alt1650$ GeV). More generally we give the reach of this process for a selection of possible cuts and integrated luminosities.

Primary author: Prof. KAO, Chung (University of Oklahoma (US))

Presenter: Prof. KAO, Chung (University of Oklahoma (US))

Session Classification: Room 219 - BSM - Non-SUSY - TR3

Track Classification: Track 3 - BSM - Non-SUSY Exotics