Abstract Submitted
for the NWS12 Meeting of
The American Physical Society

Of Spheres and Matrices PHILIPPE SABELLA-GARNIER, KEN HUAI-CHE YEH, JOANNA KARCZMAREK, University of British Columbia — Gauge theory with a Higgs field on a sphere emerges from a Lagrangian with matrix degrees of freedom and no explicit spatial dependence. The sphere is noncommutative, leading to a deep connection between the fields and the underlying geometry. More specifically, we examine how the Higgs field corresponds to a deformation of the sphere in the radial direction. We show that in certain cases this effect persists even in the commutative limit. We also compare this approach with the construction of surfaces from matrix representations of D-branes.

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Date submitted: 14 Sep 2012 Electronic form version 1.4