Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Physics and Geometry of Brane Vectors[1] CHI XIONG, Postdoc Research Associate, Purdue, TOM CLARK, SHERWIN LOVE, Professor, Purdue, TONNIS TER VELDHUIS, Professor, Macalester — In the flexible brane world scenario we use the decomposition of higher dimensional gravity and Kaluza-Klein theories to explore the properties of extra vectors. These vectors were components of higher dimensional metric and are massive due to a Higgs effect which makes the Nambu Goldstone bosons become the longitudinal component of the vector fields. We study the masses of these vectors and their couplings to the Standard Model, by using the embedding geometry. In 5D spacetime we found that the geometry of the brane-bulk world, either intrinsic or extrinsic, depend on the extra vector and the 4D graviton only. Connections between the embedding geometry and coset construction by non-linear realization are also discussed.

[1]The work of TEC, STL and CX was supported in part by the U.S. Department of Energy under grant DE-FG02-91ER40681 (Task B).

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Date submitted: 11 Jan 2008 Electronic form version 1.4