University of Notre Dame
College of Science
Department of Physics

PARTICLE PHYSICS SEMINAR

Electroweak Limits on General New Vector Bosons

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In this talk I will discuss extensions of the Standard Model with general new vector bosons and the constraints that can be derived in such scenarios from electroweak precision data. The full Standard Model gauge symmetry is used to classify the extra vectors and constrain their couplings. The corresponding effective Lagrangian, valid at energies lower than the mass of the extra vectors, is derived and used to extract limits from electroweak precision observables, including LEP 2 data. The interplay of several extra vectors is also analyzed. This can have the effect of opening up new regions in the parameter space. In particular, it allows to explain the anomaly in the bottom forward-backward asymmetry with perturbative couplings. Finally, I will discuss quantitatively the implications for the Higgs mass.

ALL INTERESTED PERSONS ARE CORDIALLY INVITED TO ATTEND