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# Exploring Yukawa and Gauge-Yukawa Unification at the LHC (15' + 5')

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Third family (t-b-tau) Yukawa unification is predicted in a class of grand unified models based on SO(10) as well as its subgroup H = SU(4) x SU(2) x S (2). This can lead to some surprising conclusions for the low energy MSSM phenomenology. For instance, in SO(10) the gluino turns out to be the lightest colored sparticle, while the gauge symmetry H can yield a gluino NLSP scenario. A search for NLSP gluino at the LHC involving multi-b final states will be discussed. Gauge-Yukawa unification can arise from higher dimensional unified theories, yields several interesting low energy scenarios including gluino NLSP, and it will be tested at the LHC following a precise determination of the top mass.

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