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# Lepto-quark and di-quark at the LHC

*Friday 8 June 2012 18:00 (20 minutes)*

New physics at the LHC may appear as the discovery of lepto-quark gauge bosons, or di-quark resonances, as those can be produced strongly via gluon gluon fusion and giving distinctive signals in the final states. In this talk, I will discuss theoretical motivation and models giving rise these particles at the TeV scale. Lepto-quark in the TeV scale evade the existing strong bound from the flavor changing processes by unifying quarks and leptons in higher dimensions, and the breaking the gauge symmetry to the Standard Model via compactification. This type of models gives additional new quarks and leptons, and a possible dark matter candidate which can be explored at the LHC. The models of di-quarks give rise to new physics contribution in the  $t\bar{t}$  as well as single top production which can be explored at the LHC. This talk will review this field, and also discuss our recent work (arXiv1201.5616 [hep-ph], submitted to Phys. Rev. D, and arXiv1201.2917 [hep-ph], to appear in Phys. Rev. D).

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