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Search for lepto-quark and compositness at the Tevatron

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We report on searches for the production of scalar and vector leptoquarks in ppbar collisions at the Tevatron collider. Leptoquarks, which are predicted by several extensions of the Standard Model, are hypothetical particles carrying both lepton and quark flavors. At hadron colliders they can either be pair-produced via the strong interaction or a single leptoquark can be produced in association with a
lepton via the hypothesized leptoquark-lepton-quark coupling. Searches for the pair-production of leptoquarks of all three generations have been performed. No evidence of leptoquarks is found and upper limits on the production cross sections are given. Quark compositeness, large extra dimensions, and TeV-1 scale extra dimensions are as well searched for in dijet final states. Shapes of dijet angular distributions have been measured over a range of dijet masses, from 0.25 TeV and beyond 1TeV. The data are in good agreement with the predictions of perturbative QCD and are used to constrain new physics models.

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