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## Family Symmetry for Flavor and SUSY Flavor

Non-Abelian family symmetries can help us understand the observed pattern of quark and lepton masses, and possibly lead to testable predictions in the flavor sector. The same family symmetries can also control excessive flavor violation that generally arises in supersymmetric models. I will present a class of models with a non-Abelian family symmetry wherein the first two family fermions (and sfermions) belong to a doublet, and the third family is a singlet. Such a setup based on the symmetry group  $Q_6$  leads to a successful prediction for the CKM mixing parameter  $\sin(2\beta)$ . There are interesting and calculable flavor changing as well as CP-violating effects in the  $B_d$  and  $B_s$  systems, which arise from SUSY particle exchange. These predictions will be summarized, and the expectation for the SUSY spectrum will be presented. This work is based on a series of papers written in collaboration with Jisuke Kubo and Yanzhi Meng. The most recent work is “Variations of the supersymmetric  $Q_6$  model of flavor”, by K.S. Babu and J. Kubo (to appear). Recent work includes “Flavor violation in supersymmetric  $Q_6$  model”, by K.S. Babu and Yanzhi Meng, Phys.Rev.D80:075003,2009, and an earlier work “Dihedral families of quarks, leptons and Higgs bosons”, by K.S. Babu and J. Kubo, Phys.Rev.D71:056006,2005.

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