

International Workshop on Grand Unified Theories: Current Status and Future Prospects



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B-anti-B mixing and lepton flavor violation in supersymmetric grand unified models

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We study B-anti-B mixing in grand unified SO(10), SU(5) models where the mixings among the second and third generation squarks arise due to the existence of flavor violating sources in the Dirac and Majorana couplings which are responsible for neutrino mixings. We find that when the branching ratio of $\tau \rightarrow \mu \gamma$ decay is enhanced to be around the current experimental bound, B_s -anti-B mixing may also contain large contribution from supersymmetry in the SO(10) boundary condition. We also study the constraint arising from the recently observed D-anti-D mixing. In the left-right symmetric unified models, the supersymmetric contributions in the mixing amplitudes of D-anti-D, K-anti-K and B-anti-B are all correlated. We compare the constraint from the D-D mixing with the K-anti-K mixing and find that the D-anti-D mixing constrains the maximal supersymmetric contribution to the B_s -anti- B_s mixing amplitude. The maximal supersymmetric contribution can allow a large CP phase of B_s -anti- B_s mixing which can be tested by the ongoing measurement of the phase of $B_s \rightarrow J/\psi \phi$ decay.

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