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Search for a scalar top quark at CDF WILL JOHNSON, University of California, Davis, CDF COLLABORATION — For some regions of SUSY parameter space it is conceivable that the supersymmetric partner of the top quark (stop squark) could be the lightest squark, and could actually be less massive than the standard model top quark. Also, depending on the mass hierarchy of SUSY, a stop squark event might look nearly identical in the detector to that of a top quark event. The presence of such a light stop squark could easily go unnoticed due to the much lower production cross section of the scalar stop squark, as compared to the fermionic top quark. We present a search for the stop squark at CDF in the mass range 135 to 170 GeV. We look in the dilepton decay channel, that is a final state with two leptons, at least two jets, and large missing transverse energy. Using a weighting technique, we reconstruct the mass of the under-constrained stop squark events, and use the reconstructed mass to discriminate stop squark events from backgrounds. This new reconstruction technique provides a promising avenue to search for the stop squark.

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Special instructions: Membership pending

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