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Supersymmetric Electroweak Radiative Corrections To $e^+ e^- \to W^+W^-$

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Abstract: In this short note we summarize some of the work of our thesis, which is also reported elsewhere in detail. We have examined the one loop quantum corrections to the W pair production in the electron positron annihilation in the context of supersymmetric electroweak theory. We have adopted the On Mass Shell Renormalization scheme of Sakakibara and previously demonstrated the consistency of this scheme. The relevant analytic results are written out. A complete computer program for these corrections has been developed. This program has been checked in several ways to ensure against errors over the life of the calculation where many subtle cancellations are involved. The major aim of our work was to calculate the Supersymmetric Quantum Flavor Dynamics (SQFD] one loop radiative corrections to the process $e^+e^- \to W^+W^-$. The addition of the particles due to Supersymmetry [SUSY] tend to increase the amount of one loop corrections on the order of 8%. With an accurate measurement at LEP II, one can, in principle, detect such a deviation away from the Standard Model [SM].

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