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## Measurement of the top quark mass and couplings at Linear Colliders

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Result of merged abstracts:

The future precision studies of the Standard Model require excellent knowledge of the top quark mass, to an accuracy of 100 MeV or better. This mass can be measured in a way that is free of any ambiguities from soft QCD by locating the threshold position for  $e^+e^-$  annihilation to top quarks, or, more precisely, the mass of the unstable  $1S$  resonance. The measurement requires a combination of precise QCD calculations, excellent detection efficiency and recognition of top quark events, and excellent control of the initial beam energy and profile. This contribution will report the current status of this program, with results from full-simulation studies of measurements of the top quark threshold in the detectors proposed for ILC and CLIC.

Models in which the Higgs boson is composite or strongly interacting typically predict modifications of the coupling of the top quark to vector bosons and, in particular, to the Z boson. The production of the top quarks at  $e^+e^-$  colliders goes through the top quark couplings to the photon and the Z. Thus, precision studies of this pair production process, including its full dependence on electron and top quark polarization, has the potential to extract the form factors for the top quark couplings with high precision and in a model-independent way. This contribution will report the current status of this program, with results from full-simulation studies of top quark pair production in the detectors proposed for ILC and CLIC.

### Summary

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