First ECFA WORKSHOP.

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Three-loop massive form factors

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In this talk three-loop QCD corrections to heavy quark form factors are presented. They constitute the virtual corrections for various processes as, e.g., top quark production in e^+e^- annihilation or Higgs decay into heavy quarks. A semi-numerical method is discussed, which is based on expansions around singular and regular kinematical points. They are matched at intermediate values of the squared partonic center-of-mass energy s which allows to cover the whole kinematic range. The method permits a systematic increase of the precision by varying the expansion depth and the choice of the intermediate matching points. Results are presented for various choices of external currents.

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