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Numerical multi-loop calculations with SecDec

Tuesday, 2 September 2014 14:00 (25 minutes)

SecDec is a program which can be used for the
evaluation of parametric integrals, in particular multi-loop integrals.
For a given set of propagators defining the graph,
the program automatically constructs
a Feynman parameter representation, extracts the singularities in the
dimensional regularisation parameter and produces a
Laurent series in this parameter, whose coefficients are then evaluated
numerically.
Threshold singularities are handled by an automated deformation
of the integration contour into the complex plane.
We present various new features of the program,
which extend the range of applicability and increase the speed.
We also present recent phenomenological examples of applications
to two-loop integrals with several mass scales.

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