

1067-33-2430

Andrei I. Davydychev* (davyd@thep.physik.uni-mainz.de), Moscow State University, Russia, Moscow. *Geometrical approach to the evaluation of Feynman diagrams and its application to the epsilon-expansion* Preliminary report.

Departing from the standard Feynman parametric representation of multileg Feynman diagrams and using a number of transformations, one can translate these objects into geometrical language involving angles, (hyper-)volumes, etc. The connection of angular and kinematical variables is discussed, as well as the use of analytical continuation to get results valid in other regions of variables. For the dimensionally-regulated integrals, the epsilon-expansion of resulting hypergeometric functions is also described, including a recursive construction of higher terms and a connection to the multiple polylogarithms. (Partly based on work with Robert Delbourgo and Mikhail Yu. Kalmykov.) (Received September 30, 2010)