

$$I_4^{\{D=4-2\epsilon\}}(0, m^2, 0, m^2, 0; s_{12}, s_{23}; 0, 0, m^2, m^2)$$

Page contributed by [R.K. Ellis](#)

$$\begin{aligned} & I_4^{\{D=4-2\epsilon\}}(0, m^2, 0, m^2; s_{12}, s_{23}; 0, 0, m^2, m^2) \\ &= \frac{1}{(m^2 - s_{23})(m^2 - s_{12})} \left(\frac{\mu^2}{m^2}\right)^\epsilon \left[\frac{1}{\epsilon^2} - \frac{1}{\epsilon} \left[\ln\left(\frac{m^2 - s_{23}}{m^2}\right) + \ln\left(\frac{m^2 - s_{12}}{m^2}\right) \right] \right. \\ &+ \left. 2 \ln\left(\frac{m^2 - s_{23}}{m^2}\right) \ln\left(\frac{m^2 - s_{12}}{m^2}\right) - \frac{\pi^2}{2} \right] + \mathcal{O}(\epsilon) \end{aligned}$$

See the file on [notation](#). See also Eq. (A5) of ref. [?] (note differing definition of ϵ) or Eq. (6.70) of ref. [?] for an identical expression. Information about terms of order ϵ and ϵ^2 can be obtained in ref. [?].

[Return to general page on boxes](#)

References

- [1] P. Nason, S. Dawson and R. K. Ellis, (unpublished)
- [2] W. Beenakker, H. Kuijf, W. L. van Neerven and J. Smith, Phys. Rev. D **40**, 54 (1989). [Inspire](#)
- [3] R. Höpker, Hadroproduction and decay of squarks and gluinos, (in german), DESY Internal report DESY-T-96-02, ([Relevant excerpt](#))
- [4] J. G. Korner, Z. Merebashvili and M. Rogal, Phys. Rev. D **71**, 054028 (2005) [[arXiv:hep-ph/0412088](#)]
see also [for a report on the formula in this paper in Mathematica Format](#)