Divergent Box Integral 1: $I_4^{D=4-2\epsilon}(0,0,0,0;s_{12},s_{23};0,0,0,0)$

Page contributed by R.K. Ellis

The result for the box integral (see figure) with four zero mass legs is [**?**]

$$I_4^{\{D=4-2\epsilon\}}(0,0,0,0;s_{12},s_{23};0,0,0,0) = \frac{\mu^{2\epsilon}}{s_{12}s_{23}}$$
$$\times \left[\frac{2}{\epsilon^2}\Big((-s_{12}-i\varepsilon)^{-\epsilon}+(-s_{23}-i\varepsilon)^{-\epsilon}\Big) - \ln^2\left(\frac{-s_{12}-i\varepsilon}{-s_{23}-i\varepsilon}\right) - \pi^2\right] + \mathcal{O}(\epsilon)\,.$$

See the file on notation.

An alternative form requiring two evaluations of dilogarithms is given in Eq. (73) of ref. [**?**].

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References

[1] Z. Bern, L. J. Dixon and D. A. Kosower, Nucl. Phys. B **412**, 751 (1994) [arXiv:hep-ph/9306240]

[2] G. Duplancic and B. Nizic, Eur. Phys. J. C **20**, 357 (2001) [arXiv:hep-ph/0006249]