

$$I_4^{\{D=4-2\epsilon\}}(0, m_1^2, 0, m_2^2; t, u; 0, 0, m_1^2, m_1^2)$$

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$$\begin{aligned} I_4^{\{D=4-2\epsilon\}}(0, m_1^2, 0, m_2^2; t, u; 0, 0, m_1^2, m_1^2) = \\ \frac{1}{(t - m_1^2)(u - m_1^2)} \left[\frac{1}{2\epsilon^2} - \frac{1}{\epsilon} \left[\ln \left(\frac{m_1^2 - u}{m_1^2 - m_2^2} \right) + \ln \left(\frac{m_1^2 - t}{m_1 \mu} \right) \right] - \frac{\pi^2}{12} \right. \\ \left. + \ln^2 \left(\frac{m_1^2 - t}{m_1 \mu} \right) + 2 \ln \left(\frac{m_1^2 - t}{m_1 \mu} \right) \ln \left(\frac{m_1^2 - u}{m_1^2 - m_2^2} \right) + 2 \text{Li}_2 \left(\frac{t - m_2^2}{m_1^2 - m_2^2} \right) - 2 \text{Li}_2 \left(\frac{m_2^2 - u}{m_1^2 - u} \right) \right] \end{aligned}$$

For Li_2 etc, see the file on [notation](#).

This integral has been given in Eq. (6.78) of ref [1].

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References

- [1] R. Höpker, Hadroproduction and decay of squarks and gluinos, (in german), DESY Internal report DESY-T-96-02, [\(Relevant excerpt\)](#)