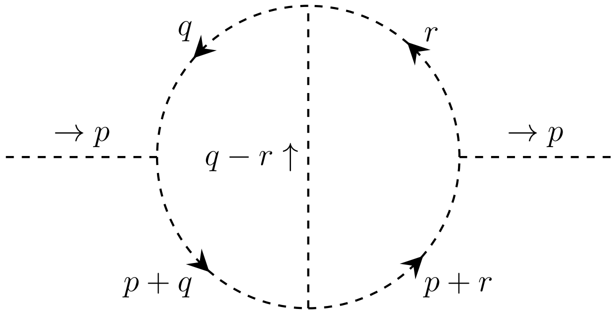
metric convention: $(+,-,-,-)$
Lagrangian:

$$\mathcal{L} = \frac{1}{2}\partial_\mu\phi\partial^\mu\phi - \frac{1}{2}M^2\phi^2 + \partial_\mu\chi^\dagger\partial^\mu\chi - g\phi\chi^\dagger\chi.$$

1 Diagram 1



$$\Pi_1(p^2) = g^4\int\frac{d^dq}{(2\pi)^d}\frac{d^dr}{(2\pi)^d}\frac{1}{q^2}\frac{1}{(p+q)^2}\frac{1}{r^2}\frac{1}{(p+r)^2}\frac{1}{(q-r)^2-M^2}.$$

We first deal with the r-integral:

$$\begin{aligned}
I_1 &:= \int\frac{d^dr}{(2\pi)^d}\frac{1}{r^2}\frac{1}{(p+r)^2}\frac{1}{(q-r)^2-M^2}\\
&= 2\int\frac{d^dr}{(2\pi)^d}\int_0^1 dx\int_0^{1-x}dy\frac{1}{[(1-x-y)r^2+y(p+r)^2+x((q-r)^2-M^2)]^3}\\
&= 2\int\frac{d^dr}{(2\pi)^d}\int_0^1 dx\int_0^{1-x}dy\frac{1}{(r'^2-\Delta_r)^3}\\
&= \frac{-i\Gamma(3-\frac{d}{2})}{(4\pi)^{d/2}}\int_0^1 dx\int_0^{1-x}dy\frac{1}{\Delta_r^{3-d/2}},
\end{aligned}$$

where $r' = r - xq + yp$ and $\Delta_r = -x(1-x)q^2 - y(1-y)p^2 - 2xyqp + xM^2$. Now the total integral becomes

$$\Pi_1(p^2) = g^4\frac{-i\Gamma(3-\frac{d}{2})}{(4\pi)^{d/2}}\int_0^1 dx\int_0^{1-x}dy\int\frac{d^dq}{(2\pi)^d}\frac{1}{q^2}\frac{1}{(p+q)^2}\frac{1}{\Delta_r^{3-d/2}}.$$

Let's look at the q-integral:

$$\begin{aligned}
I_2 &:= \int\frac{d^dq}{(2\pi)^d}\frac{1}{q^2}\frac{1}{(p+q)^2}\frac{1}{\Delta_r^{3-d/2}}\\
&= \frac{\Gamma(7-\frac{d}{2})}{\Gamma(3-\frac{d}{2})}\int_0^1 dz\int_0^{1-z}dw\int\frac{d^dq}{(2\pi)^d}\frac{z^{2-d/2}w(1-z-w)}{[z\Delta_r+w(p+q)^2+(1-z-w)q^2]^{7-d/2}}.
\end{aligned}$$

The denominator is

$$\begin{aligned}
D &:= z\Delta_r + w(p+q)^2 + (1-z-w)q^2\\
&= (1-z-xz+x^2z)q^2 + (-yz+y^2z+w)p^2 + 2(-xyz+w)pq + xzM^2\\
&= (1-z-xz+x^2z)\left(q+\frac{-xyz+w}{1-z-xz+x^2z}p\right)^2 + \left(-\frac{(-xyz+w)^2}{1-z-xz+x^2z} - yz + y^2z + w\right)p^2 + xzM^2\\
&=: (1-z-xz+x^2z)q'^2 - \Delta_q.
\end{aligned}$$

Then

$$\int\frac{d^dq}{(2\pi)^d}\frac{1}{[(1-z-xz+x^2z)q'^2-\Delta_q]^{7-d/2}} = \frac{-i(-1)^{-d/2}}{(4\pi)^{d/2}}\frac{\Gamma(7-d)}{\Gamma(7-\frac{d}{2})}\frac{1}{(1-z-xz+x^2z)^{d/2}}\frac{1}{\Delta_q^{7-d}}.$$

Bringing all together,

$$\Pi_1(p^2) = g^4 \frac{-(-1)^{-d/2}}{(4\pi)^d}\Gamma(7-d) \int_0^1 dx \int_0^{1-x} dy \int_0^1 dz \int_0^{1-z} dw \frac{z^{2-d/2}w(1-z-w)}{(1-z-xz+x^2z)^{d/2}} \frac{1}{\Delta_q^{7-d}}.$$