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$$D(k^2) = \frac{1}{k^2}\frac{1}{1+\frac{\nu e_1^2}{3\pi}\ln\frac{\Lambda^2}{k^2}}$$

for $e_1^2 \ll 1$. ν: effective number of elementary particles which interact weakly

$$e^2 = e_1^2 \lim_{k^2\to 0} k^2 D(k^2) = \frac{e_1^2}{1+\frac{\nu e_1^2}{3\pi}\ln\frac{\Lambda^2}{m^2}}$$

$$\left.\begin{aligned} D(k^2) &= \frac{3\pi}{\nu e_1^2}\frac{1}{\ln\frac{\Lambda^2}{k^2}}\frac{1}{k^2} \\ e^2 &= \frac{3\pi}{\nu}\frac{1}{\ln\frac{\Lambda^2}{m^2}} \end{aligned}\right\} \text{ for } \frac{\nu e_1^2}{3\pi}\ln\frac{\Lambda^2}{k^2} \gg 1$$

$$e_1^2 D = \frac{3\pi}{\nu\ln(\Lambda^2/k^2)}\frac{1}{k^2}$$

$$e^2 = \frac{3\pi}{\nu\ln\Lambda^2/m^2} \to 0, \quad \Lambda^2 \to \infty$$

$$\nu\Lambda_0^2 \sim 1 \qquad \nu = 12$$

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