$$m_{H}^{0} \qquad m_{H}^{1}$$

$$\Delta m_{H}^{2} = (m_{H}^{1})^{2} - (m_{H}^{0})^{2} = -\frac{|\lambda_{f}|^{2}}{8\pi^{2}} \Lambda^{2}$$

$$S$$

$$M$$

$$\Delta m_{H}^{2} = \frac{|\lambda_{S}|^{2}}{8\pi^{2}} \left[\Lambda^{2} - 2m_{S}^{2} \ln(\Lambda/m_{S})\right]$$