

Parameter space

$$S = \frac{1}{\sqrt{2}} (v_1 + h_1) + \frac{i}{\sqrt{2}} A_1$$

$$S' = \frac{1}{\sqrt{2}} (v_2 + h_2) + \frac{i}{\sqrt{2}} A_2$$

G', A

$$\begin{pmatrix} H_1 \\ H_2 \end{pmatrix} = \begin{pmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{pmatrix} \begin{pmatrix} h_1 \\ h_2 \end{pmatrix}$$

$$\tan \beta = \frac{v_2}{v_1}$$

$$M_{Z'}^2 = g_{BL}^2 v_2^2 (4 + \tan^2 \beta)$$