

$$\begin{pmatrix} u \\ e \end{pmatrix}$$

$$\bar{e}$$

$$\begin{pmatrix} u \\ d \end{pmatrix}$$

$$\begin{pmatrix} u \\ d \end{pmatrix}$$

$$\begin{pmatrix} u \\ d \end{pmatrix}$$

$$\bar{u}$$

$$\bar{u}$$

$$\bar{u}$$

$$\bar{d}$$

$$\bar{d}$$

$$\bar{d}$$

modello standard

$$\begin{pmatrix} \bar{d} \\ \bar{d} \\ \bar{d} \\ u \\ e \end{pmatrix}$$

$$\begin{pmatrix} \bullet & \bar{u} & \bar{u} & u & d \\ \bullet & \bullet & \bar{u} & u & d \\ \bullet & \bullet & \bullet & u & d \\ \bullet & \bullet & \bullet & \bullet & \bar{e} \\ \bullet & \bullet & \bullet & \bullet & \bullet \end{pmatrix}$$

modello GUT SU (5)