

$$D = 3$$

$$E_7^0 = E_7: \quad \text{scalar coset } E_7/SU_8 \ni \mathbb{Q}$$

$$\begin{aligned} & \begin{matrix} 9 \\ \left\{ \begin{array}{l} \mathbb{Z}\mathbb{Q} \\ \mathcal{Z}\mathcal{Z}_i\mathcal{X}_{ij}\mathcal{O}_{ijk} \\ \mathcal{X}\mathcal{O}_i\mathcal{X}_i\mathcal{O}_{ij} \end{array} \right. \\ 3 \end{matrix} = \boxed{\mathbb{Z}} + \overline{\mathbb{Q}} - e^{a|\mathbb{Q}} \overline{\mathcal{Z}} - e^{a_i|\mathbb{Q}} \overline{\mathcal{Z}}_i - e^{a_{ij}|\mathbb{Q}} \overline{\mathcal{X}}_{ij} \\ & - e^{a_{ijk}|\mathbb{Q}} \overline{\mathcal{O}}_{ijk} - e^{c|\mathbb{Q}} \overline{\mathcal{X}} - e^{c_i|\mathbb{Q}} \overline{\mathcal{O}}_i - e^{b_i|\mathbb{Q}} \overline{\mathcal{X}}_i - e^{b_{ij}|\mathbb{Q}} \overline{\mathcal{O}}_{ij} + \text{FFA} \end{aligned}$$

$$E_6^0 = E_6: \quad \text{scalar coset } = E_6/\mathbb{H}_4^U \ni \mathbb{Q}$$

$$\dim E_6/U_4^{\mathbb{H}} = 52$$

$$6 \text{ dilatons } \mathbb{Q} \text{ diagonal:} \quad \text{axions } \begin{cases} \mathcal{O}_{ijk} & 10 \\ \mathcal{O}_{ij} & 10 \\ \mathcal{O}_i & 1 \end{cases} : \quad \text{vectors } \begin{cases} \mathcal{X}_{ij} & 10 \\ \mathcal{X}_i & 15 \end{cases}$$

$$\begin{aligned} ? & \begin{matrix} 9 \\ \left\{ \begin{array}{l} \mathbb{Z}\mathbb{Q} \\ \mathcal{Z}\mathcal{Z}_i\mathcal{X}_{ij}\mathcal{O}_{ijk} \\ \mathcal{X}\mathcal{O}_i\mathcal{X}_i\mathcal{O}_{ij} \end{array} \right. \\ 3 \end{matrix} = \boxed{\mathbb{Z}} + \overline{\mathbb{Q}} - e^{a|\mathbb{Q}} \overline{\mathcal{Z}} - e^{a_i|\mathbb{Q}} \overline{\mathcal{Z}}_i - e^{a_{ij}|\mathbb{Q}} \overline{\mathcal{X}}_{ij} - e^{a_{ijk}|\mathbb{Q}} \overline{\mathcal{O}}_{ijk} \\ & - e^{c|\mathbb{Q}} \overline{\mathcal{X}} - e^{c_i|\mathbb{Q}} \overline{\mathcal{O}}_i - e^{b_i|\mathbb{Q}} \overline{\mathcal{X}}_i - e^{b_{ij}|\mathbb{Q}} \overline{\mathcal{O}}_{ij} + \text{FFA} \end{aligned}$$

$$E_5^0 = O_{5:5}: \quad \text{scalar coset } O_{5:5}/O_5 \times O_5$$

$$E_4^0 = SL_5^{\mathbb{R}}: \quad \text{scalar coset } SL_5^{\mathbb{R}}/O_5$$

$$E_3^0 = SL_2^{\mathbb{R}} \times SL_3^{\mathbb{R}}: \quad \text{scalar coset } SL_2^{\mathbb{R}}/O_2 \times SL_3^{\mathbb{R}}/O_3$$

$$E_2^0 = GL_2^{\mathbb{R}}: \quad \text{scalar coset } GL_2^{\mathbb{R}}/O_2$$

$$E_1^0 = O_{1:1}: \quad \text{scalar coset } O_{1:1} \ni \mathbb{Q} \text{ dilaton}$$

$$\begin{cases} \mathbb{Z} \\ \mathbb{Q} \\ \mathcal{Z} \end{cases} = \boxed{\mathbb{Z}} + \overline{\mathbb{Q}} - e^{4\mathbb{Q}} \overline{\mathcal{Z}}$$

$$F_4^0 = F_4: \quad \text{scalar coset } F_4/$$

$$G_2^0 = G_2: \quad \text{scalar coset } G_2/SU_2 \times SU_2$$

$$D_8^0 = O_{8:8}: \quad \text{scalar coset } O_{8:8}/O_8 \times O_8 \cong \mathbb{Q}$$

$$\begin{matrix} 10 \\ \left\{ \begin{array}{l} \mathbb{Z} \mathbb{Q} \\ \mathcal{X}^i \mathcal{O}^j \\ \mathcal{X}^i \mathcal{O}^j \end{array} \right. \\ 3 \end{matrix} = \boxed{\mathbb{Z}} + \overline{\mathbb{Q}}^2 - \sum_i \mathbf{e}^{b_i|\mathbb{Q}} \overline{\mathcal{X}^i}^2 - \sum_{i < j} \mathbf{e}^{b_{ij}|\mathbb{Q}} \overline{\mathcal{O}^i}^2_{-j} - \sum_i \mathbf{e}^{a_i|\mathbb{Q}} \overline{\mathcal{X}^i}^2_{-i} - \sum_{i < j} \mathbf{e}^{a_{ij}|\mathbb{Q}} \overline{\mathcal{O}^i}^2_{-ij}$$