

$$3 \ddagger 3_{\mathbb{C}} 1_{\mathbb{C}}^0$$

$$3_{\mathbb{C}} 1_{\mathbb{C}}^0 = 4_{\mathbb{C}}^0 \text{ ell}$$

$$F / \mathbb{C}_4 = I_{\mathbb{C}} / \mathbb{C}_3$$

$$\begin{cases} F & \mathbb{C}_{1:3} = \text{ell CY}_4 \\ \mathbb{R}^{1:3} & E_{6/7/8} \text{ gauge} \end{cases}$$

$$\frac{\begin{bmatrix} 2:10 \\ 4 \end{bmatrix}_{\mathbb{C}}}{\begin{bmatrix} 1:7 \\ 3 \end{bmatrix}} = \begin{bmatrix} 1:3 \\ 1 \end{bmatrix} = \frac{\begin{bmatrix} 1:9 \\ 3 \end{bmatrix}_{\mathbb{C}}}{\begin{bmatrix} 6 \\ 2 \end{bmatrix}}$$

ell Y3 with section

$$F / 2_{\mathbb{C}} 1_{\mathbb{C}} \begin{cases} D6 \\ N(1:0) \end{cases}$$

$$\text{multiplet} \begin{cases} \text{vector} \\ \text{tensor} \\ \text{hypor} \end{cases}$$

monodromy fibration \Rightarrow laced Lie alg

$$4_{\mathbb{C}}^0 = 3_{\mathbb{C}} \times 1_{\mathbb{C}}^0$$

$$H_2^{\mathbb{Z}}(4_{\mathbb{C}}^0) \supset H_2^{\mathbb{Z}}(3_{\mathbb{C}}) \times \mathbb{Z} 1_{\mathbb{C}}^0$$

$$\text{4-dim gauge group co-root lattice : } \frac{H_2^{\mathbb{Z}}(4_{\mathbb{C}}^0)}{H_2^{\mathbb{Z}}(3_{\mathbb{C}}) \times \mathbb{Z} 1_{\mathbb{C}}^0}$$