Zwiebach

$$\text{IIB } /\mathbb{P} = \text{ F } / \text{K3}_{\text{ ell}}$$

$$\mathbb{P} = 1_{\mathbb{C}}^{\text{rat}}$$

$$\text{K3}_{\text{ ell}}\ 2_{\mathbb{C}}^{0} = 1_{\mathbb{C}}^{0}\, 1_{\mathbb{C}}$$

$$7 ł / 1_{\mathbb{C}}$$

$$\text{background parallel } D_7^{24}$$

$$7 ł / 0_{\mathbb{C}}$$

$$0_{\mathbb{C}} = \frac{z \in \mathbb{P}}{{}^{z}\Delta = 0} = \frac{z \in \mathbb{P}}{{}^{z}1_{\mathbb{C}} \text{ sing}} \text{ position of D7}$$

$$\text{simple D7 } \sharp 0_{\mathbb{C}} = 24 \Longrightarrow 2_{\mathbb{C}}^{0} \text{ reg}$$

$$\text{multiple D7 } \sharp 0_{\mathbb{C}} < 24 \Longrightarrow 2_{\mathbb{C}}^{0} \text{ sing}$$

$$0_{\mathbb{C}} \text{ sing } \Leftrightarrow \text{ vanishing 2-cycles } \mathbb{Z} < C_1 \cdots C_k >= ł_{\mathbb{Z}} \sqsubset 2_{\mathbb{C}}^{0} \Big|_{2}^{\mathbb{Z}} = \mathbb{Z}^{3:19}$$

$$\begin{cases} A_{k-} = \text{SU}_k & D_7^k \text{ pairwise local} \\ D_k = \text{SO}_{2k} & \\ E_k & \end{cases}$$

$$C_i | C_j = \text{ Cartan matrix } ł_{\mathbb{Z}}$$

$$D_4: \quad \text{orienti}$$

$$\text{IIB } /\mathbb{P}_\sigma = \text{ F } / 1_{\mathbb{C}}^{0}\, 1_{\mathbb{C}}^{\sigma}$$

$$D_7^4 - O_7$$