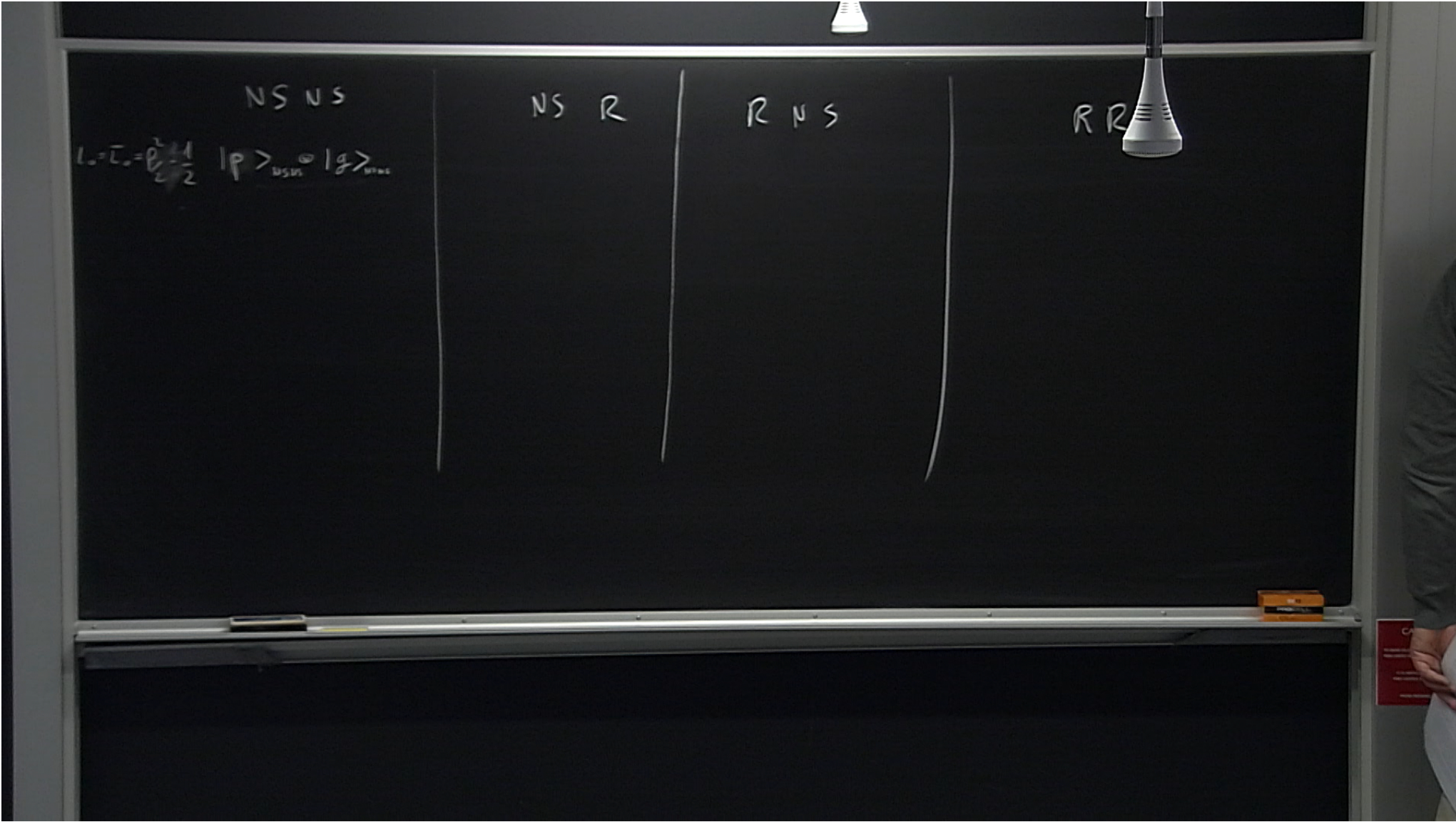


Title: PSI 2017/2018 - String Theory - Lecture 14

Date: Mar 09, 2018 10:15 AM

URL: <http://pirsa.org/18030020>

Abstract:



$$NS \quad T \rightarrow L_n \quad n \in \mathbb{Z}$$

$$G \rightarrow G_n \quad n \in \mathbb{Z} + \frac{1}{2}$$

$$L_n |PHT\rangle_{NS} \quad n > 0$$

$$G_n |PHT\rangle_{NS} \quad n > 0$$

$$L_0 |PHT\rangle = 0$$

$$L_n = \sum_{k \in \mathbb{Z}} \alpha_k^\dagger \alpha_{n-k} + \sum_{k \in \mathbb{Z} + \frac{1}{2}} i \psi_k^\dagger \psi_{n-k}$$

$$G_n = \sum_{k \in \mathbb{Z}} i \alpha_k \psi_{n-k}$$

R

$$G_n \quad n \in \mathbb{Z} + \frac{1}{2}$$

$$G_n = \sum_{\psi \in \mathbb{Z}} : \alpha_{-n} \cdot \psi_n :$$

$$L_n |P_{HT}\rangle_{NS} \quad n > 0$$

$$L_0 |P_{HT}\rangle = 0$$

$$G_n |P_{HT}\rangle_{NS} \quad n > 0$$

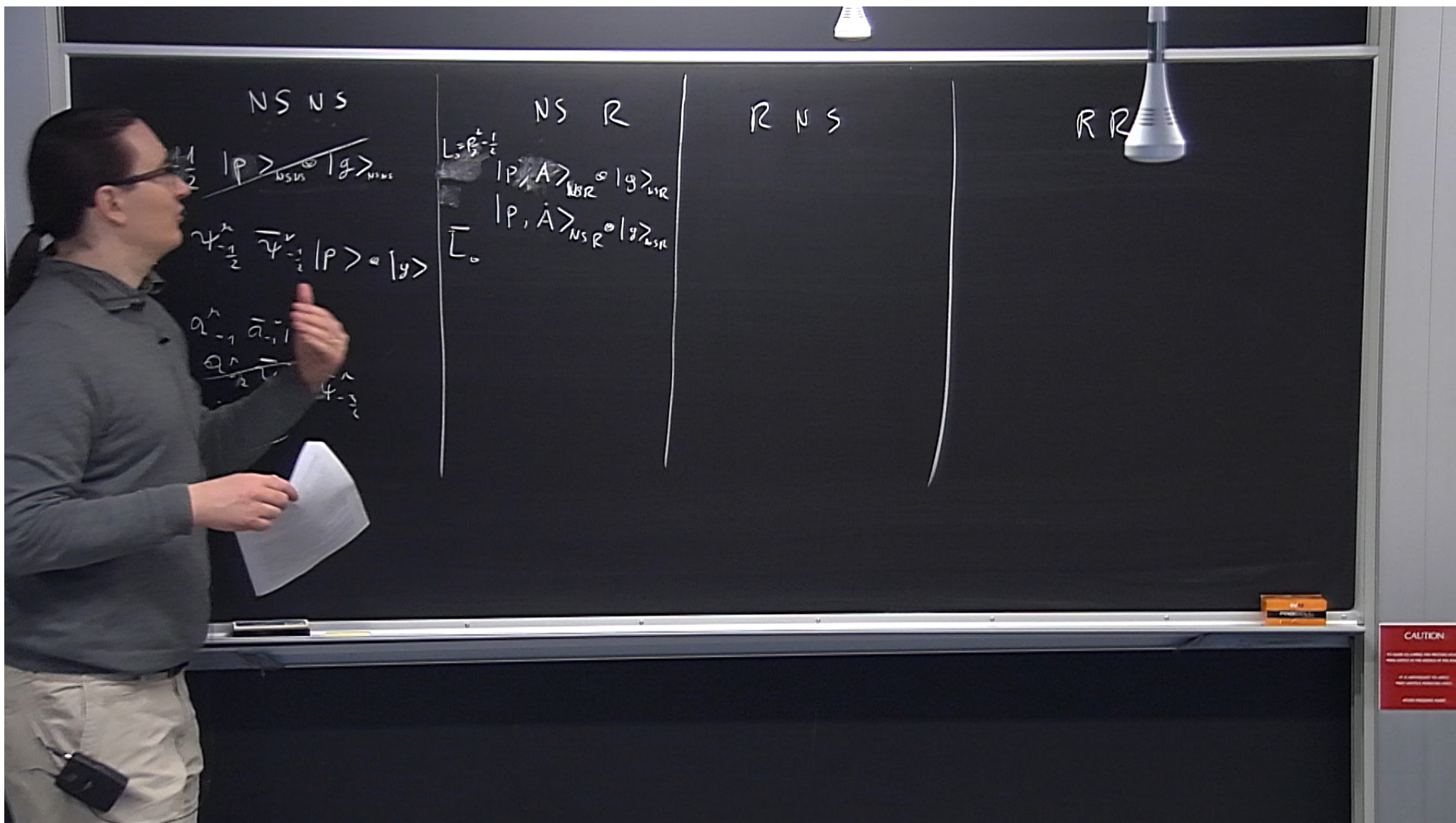
$$G_0 = \underbrace{\alpha_0 \cdot \psi_0}_{\substack{1 \\ p \cdot \gamma}}$$

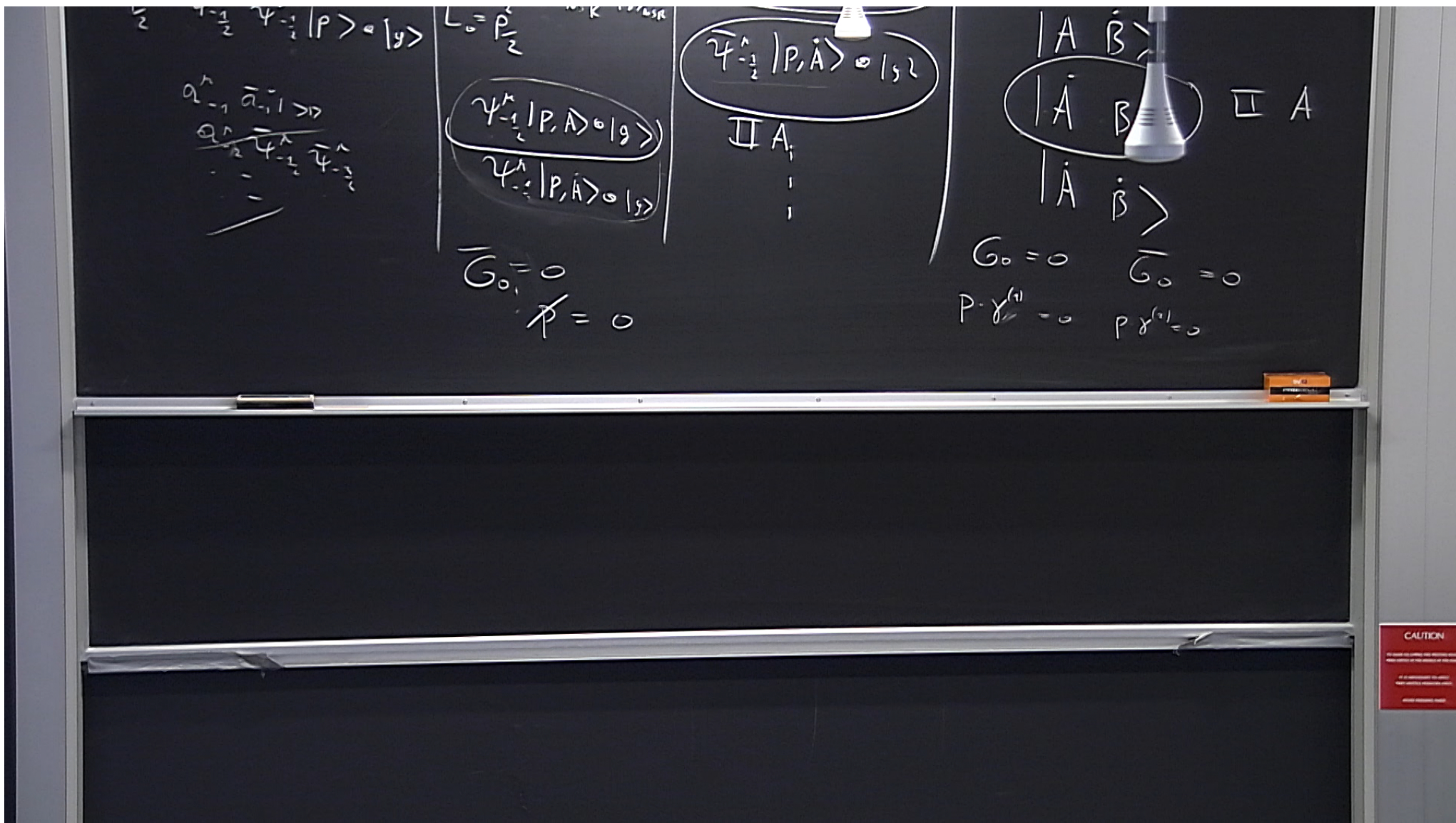
$$R \quad G_n \quad n \in \mathbb{Z} \quad G_0^2 = L_0$$

$$L_0 |P_{HT}\rangle = 0$$

$$G_0 |P_{HT}\rangle = 0$$

CAUTION
ALL WORK IS LIMITED TO THE RESEARCHER'S OWN
RESEARCH AND IS NOT TO BE USED FOR
ANY OTHER PURPOSES
ALL RIGHTS RESERVED





$$(-1)^{F_L} = 1$$

$$(-1)^{F_R} = 1$$

$$F_{AB} = F_\mu \oplus F_{\mu\sigma} \oplus F_{\mu\sigma\tau\rho}^{(+)}$$

$$F_{A\dot{B}} = F_\mu \oplus F_{\mu\nu}^0 \oplus F_{\mu\nu\sigma\tau}$$

$$16 \times 16 = \binom{10}{0} + \binom{10}{2} + \binom{10}{4}$$

$$(-1)^{F_L} = 1$$

$$(-1)^{F_R} = 1$$

$$F_{AB} = F_{\mu} \oplus F_{\mu\sigma} \oplus F_{\mu\sigma\tau\rho}^{(+)}$$

Axion

$$F_{A\dot{B}} = F_{\mu} \oplus F_{\mu\nu}^{(1)} \oplus F_{\mu\nu\tau}^{(2)}$$

$dA^{(1)} \quad dA^{(2)}$

$$16 \times 16 = \begin{pmatrix} 10 \\ 0 \end{pmatrix} + \begin{pmatrix} 10 \\ 2 \end{pmatrix} + \begin{pmatrix} 10 \\ 4 \end{pmatrix}$$

II B (D-1) D1 D3 D5 D7 D9

II A D0 D2 D4 D6 (D8)

II B (0-1) D1 D3 D5 D7 D9

II A D0 D2 D4 D6 (D8)

II A $g_s \rightarrow 1 \equiv$ 11d THEORY (M-THEORY) $R = \frac{1}{\sqrt{2}} l_p$

D2 $\rightarrow$ M2
F1 $\nearrow$
D4 $\rightarrow$ M5
NS5 $\nearrow$

$$\Pi B = \Theta + i \frac{L}{g_2} e^{i 2\phi} = \gamma$$

$$S\text{-DUALITY} \quad \tau \rightarrow -\frac{1}{\tau} \quad \begin{array}{c} F1 \\ \updownarrow \\ D1 \end{array}$$

$$\begin{array}{ccc} \Pi A \text{ on } S^1 & \rightarrow & M\text{-Theory} \\ \downarrow T & & S^1 \times S^1 \\ \Pi B \text{ on } \tilde{S}^1 & & \end{array}$$

$$\frac{d\tau d\bar{\tau}}{(1+\tau\bar{\tau})^2} \quad \bigcirc \quad SL(2, \mathbb{Z})$$