Maldacena

D3/3 decoupling

$$\text{M theory limits} \begin{cases} \text{geom sing} \\ \text{brane/bulk decoupling} \end{cases}$$

$$\text{IIB} \begin{cases} D_4^- & \text{parallel } N \\ g_s & \text{dist } = U g_s^2 \end{cases} \rightsquigarrow \text{ YM} \begin{cases} D_4^- & U_N \\ \mathcal{N}=4 \end{cases}$$

$$g_s \rightsquigarrow 0$$

s-conformal point r=0

$$\text{N parallel coincident } D_4^-: \quad t^{u^3}_{v^3} s^3$$

$$^{vs}H^{1/2} \not{0} = \underline{u}^2 - \underline{t}^2 + {}^{vs}H \left(\underline{\overline{vs}}^2 + \overline{\overline{vs}}^2 \underline{vs}^2 \right)$$

$${}^{vs}H = 1 + \frac{4\pi \overset{2}{\alpha}{}' g_s N}{\overline{vs}^4}$$

$$\not{A} = \cdots \Longrightarrow \text{ flux } N = \mathbb{S}^5_{\underline{vs}} \,|\, \not{A}$$

decoupling limit

$$R^4 = 4\pi \overset{2}{\alpha}{}' g_s N$$

$$N \rightsquigarrow \infty$$

$$\mathrm{AdS}^5_R \times \mathbb{S}^5_R$$

$$\text{YM coupling } \frac{2\pi}{g^2_{\mathrm{YM}}} + i\frac{\Theta}{4\pi} = \frac{1}{\not{0}} + \frac{i}{2\pi} \not{\emptyset} \text{ IIB coupling}$$