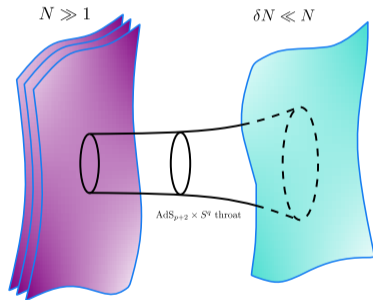
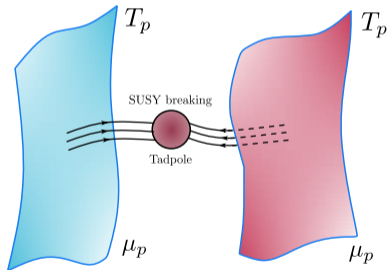


# Non-SUSY brane dynamics and the swampland

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UMONS



## Building a vantage point: string-scale SUSY breaking

Orientifold models: IIB or 0B

$$O9 + 32 \overline{D9}$$

→  $USp(32)$  (Sugimoto, 1999) or  $U(32)$  (Sagnotti, 1995)

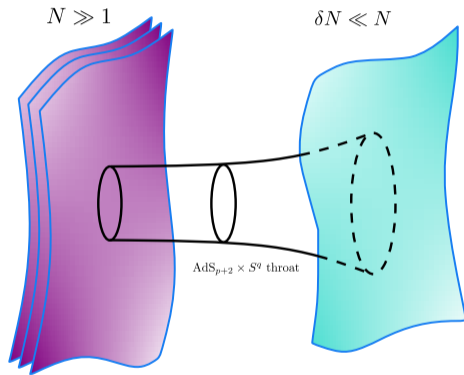
Branes in the game (Dudas, Mourad, Sagnotti, 2001)

charged D1, D5

charged, self-dual D3 in  $U(32)$

uncharged  $p \neq 1, 3, 5$

## Probe regime: charged branes



### $D_p$ probing $D_p$

$$V_{p \ll p} = T_p \left( \frac{L_{\text{AdS}}}{Z} \right)^{p+1} \left( 1 \pm v_0 \frac{\mu_p}{T_p} \right)$$

- **String models:**  $v_0 > 1$
- **Weak gravity conjecture!**

## Probe regime: charged and uncharged

$D_p$  probing  $D_8$

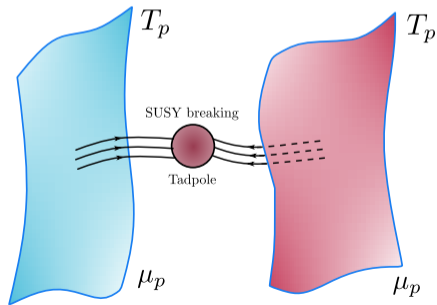
$$V_{p \ll 8} = y^{\frac{2}{9}(p-2)} e^{\frac{p-5}{8}} y^2$$

Amplitudes

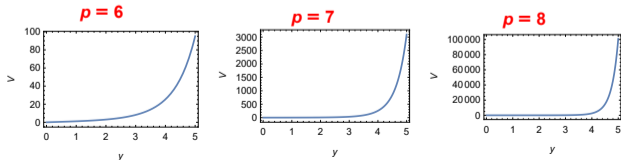
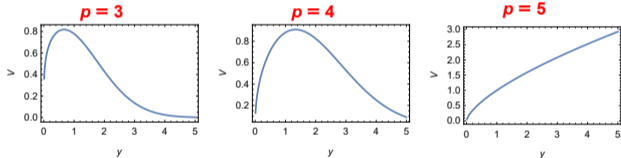
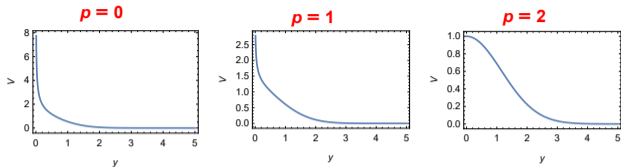
$$V_{p \sim q} = (q - p - 4) \frac{N_p N_q}{r^{7-q}}$$

$D_8$  probing  $D_1$

$$V_{8 \ll 1} = N_1 N_8 T_8 R_S^7 \left( \frac{L_{\text{AdS}}}{Z} \right)^2$$



## Dudas–Mourad probe potentials



## Qualitative features

- $p < 4$ : repulsive
- $p > 4$ : attractive

Matches w/o SUSY!

***Thank you!***