

# Maldacena @ ICTP

Quantum mechanics & the geometry of space

$$\mathcal{L} = \dot{X}^2 - \omega^2 X^2 + i\psi \partial_t \psi + i\omega \psi \psi + \mathcal{L}_{\text{int}}$$

$$\mathcal{L}_{\text{int}} = g\psi X \psi + g^2 X^4 + g\omega X^3$$

- now  $X \mapsto X \frac{I}{\omega}$ ,  $I \equiv 1 \rightarrow 0$ ,  $SO(2)$  symmetry  
adjoint  $U(N)$

- effective coupling constant  $\frac{g^2 N}{\omega^3}$ .

$\rightarrow$  in strongly coupled, finite temp.

limit  $\left( \frac{g^2 N}{\omega^3} \gg 1, \frac{g^2 N}{T^3} \gg 1, T \gg \omega \right)$

described by 10-dim black hole

$$\frac{\delta q(t)}{\delta p(0)} = \{q(0), q(t)\}$$