# Statistical Analysis of Two-Charge Bound States

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# Introduction

- In weakly coupled string theory, what is the structure of rotating & typical brane bound states?

- Example: ½-BPS bound states of NS5 branes that wrap $T^4 \times S_y^1$ and fundamental strings that wind $S_y^1$.

  Four transverse non-compact dimensions.

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  Four transverse non-compact dimensions.

- Solutions of supergravity were found & can be averaged.

  [Lunin-Mathur '01]

- When zero rotation: 4D fuzzy, solid sphere structure.
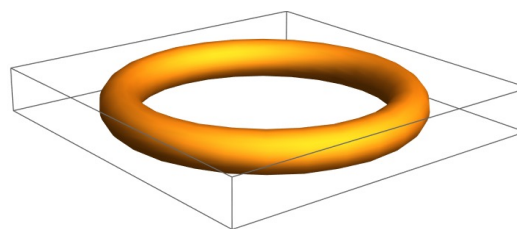
  [de Boer, Alday, Messamah, '06]

# Structure in 4D

- Including rotation: Fix angular momenta or angular potentials in two orthogonal planes.

- We have calculated a new supergravity solution describing ensembles of fixed angular potentials.

  ⇒ Ellipsoidal structure.
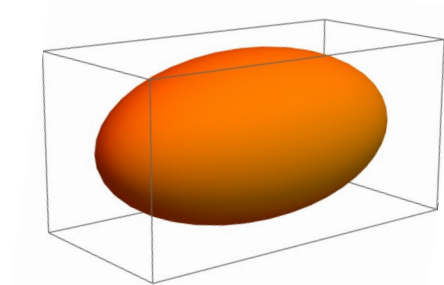
$\omega_{12}, \omega_{34}$ fixed          vs.          $J_{12}, J_{34}$ fixed

Thank you!