

Tuesday, October 10th @ 2pm  
Schwinger Lounge

## “Integrable Kerr Black Hole Spectrum from Twistor Symmetries”

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**Abstract:** When the Kerr metric is endowed with a NUT charge of value  $N = \pm iM$ , the original two isometries of the spacetime are promoted to seven phase space symmetries.

We show that these extra hidden symmetries arise naturally from its twistor space description, as a consequence of the spacetime being self-dual. The corresponding wave equation becomes integrable and equivalent to the Hydrogen atom spectrum. The original Kerr metric with  $N=0$  can be realized as an exact deformation, thus leading to a correction of the spectrum analogous to the Zeeman effect.