BLACK-HOLE MICROSTRUCTURE



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Making Microstate Geometries Spark Joy: Decluttering using Holomorphy and Dimensional Reduction

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Microstates of the three-charge D1-D5-P black hole - superstrata - are complicated solutions in 6D supergravity. I will discuss two ways to make Marie Kondo proud by "decluttering" and simplifying these solutions. First, by a clever choice of complex variables, one can quickly generalize the existing (single mode) superstrata to contain arbitrary holomorphic functions of these variables. Second, some of these superstrata can be dimensionally reduced on a three-sphere to three dimensions, where they take on a much simpler form. I will also discuss why this should "spark joy", as these new tools and insights are a first steps on a path towards constructing and understanding more general three-charge microstates.

Recorded version: http://www.youtube.com/watch?v=Li7N8NUpAAw

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