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Hypershadows of higher dimensional black objects

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What does a black hole look like? In $1 + 3$ spacetime dimensions, the optical appearance of a black hole is a bidimensional region in the observer's sky often called the black hole shadow, as supported by the EHT observations. In higher dimensions this question is more subtle and observational setup dependent. Previous studies considered the shadows of higher dimensional black holes to remain bidimensional. We argue that the latter should be regarded as a tomography of a higher dimensional structure, the hypershadow, which would be the structure "seen" by higher dimensional observers. As a case study we consider the cohomogeneity-one Myers-Perry black hole in $1 + 4$ dimensions, and compute its tridimensional hypershadow.

Which topic best fits your talk?

Astrophysics

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