

Shadow of Naked Singularity

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Recent observation of the shadow of the Messier 87 (M87) galactic center by the Event Horizon Telescope (EHT) group has triggered a great interest to investigate the causal structure of spacetime around the galactic center. From the recent investigations on gravitational lensing, it is now established that the shadow is not the signature of a black hole alone, it can also be cast by timelike or nulllike naked singularities in the presence of a photon sphere. In my talk, I will show a naked singularity, even without the photon sphere, can cast a shadow. I will show some noble features of the shadow cast by timelike and nulllike naked singularities in the absence of the photon sphere. Those noble features of the shadows of nulllike and timelike naked singularities may help us to distinguish between black holes and naked singularities observationally.

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