# Penrose diagrams for strong-field hyperboloidal slices

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**Abstract**

Conformal Carter-Penrose diagrams are a useful tool to understand the causal properties of spacetimes. Focus will be on the visualization of hyperboloidal slices – smooth spacelike slices reaching null infinity, which corresponds to the collection of the endpoints of future-directed null geodesics in asymptotically flat spacetimes. For time-independent slices of the Schwarzschild black hole geometry, I will explain how to integrate the height function to construct the diagrams. For numerically evolved slices using the eikonal equation, I will show diagrams depicting the relaxation of Schwarzschild trumpet slices and the collapse of a massless scalar field into a black hole. Based on the recent preprint 2311.04972 (gr-qc).

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