Abstract Submitted
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Dynamical Horizons of Distorted Rotating Black Holes[1] TONY CHU, California Institute of Technology, HARALD PFEIFFER, Canadian Institute for Theoretical Astrophysics, MICHAEL COHEN, California Institute of Technology, CALTECH-CORNELL-CITA NUMERICAL RELATIVITY COLLABORATION — We present numerical simulations of a rotating black hole distorted by a pulse of ingoing gravitational radiation. For strong pulses, we find up to five concentric marginally outer trapped surfaces. These trapped surfaces appear and disappear in pairs, so that the total number of such surfaces at any given time is odd. During the highly dynamical regime, we analyze the structure of marginally trapped tubes in the context of the dynamical horizon formalism, and evaluate the energy flux across them via the dynamical horizon flux law. We also evaluate the angular momentum flux across them via the generalized Damour-Navier-Stokes equation. Finally, we contrast the behavior of the marginally trapped tubes with the event horizon.

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