

Abstract Submitted
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Ultimate Fate of Apparent Horizons During a Binary Black Hole Merger IVAN BOOTH, ROBIE HENNIGAR, Memorial University of Newfoundland and Labrador, DANIEL POOK-KOLB, Max-Planck-Institut für Gravitationsphysik, Hannover — During a binary black merger, event horizons evolve via the “pair of pants diagram. This has now been understood for five decades. However the full equivalent diagram for apparent horizons, and in particular the ultimate fate of the original apparent horizon of each black hole, remained unresolved. Very recently, significant progress has been made on this problem. In this talk I will present the complete evolution of the horizons traced out by all marginally outer trapped surfaces (MOTS) during an axisymmetric black hole merger. The evolution is much more interesting and intricate than that for event horizons. The progress was made possible by the application of new MOTS-finding techniques and the behaviours of the various horizons is elucidated by an analysis of the MOTS stability spectrum.

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