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Searching for Toroidal Event Horizons in Binary Black Hole Mergers ANDY BOHN, Cornell University, SXS COLLABORATION — We find event horizons of binary black hole (BBH) mergers, produced using the Spectral Einstein Code (SpEC), and explore their topologies. When the BBH merger does not exhibit spatial symmetry, we expect the spatial cross sections of the event horizon to go through a toroidal topology. However, we find no evidence of a toroidal phase using the spatial slicing of the SpEC simulations, generalized harmonic gauge, to the accuracy of our event horizon finder. To further explore the $2+1$ dimensional event horizon hypersurface, we re-slice the event horizons in an affine slicing to look for a toroidal phase.

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