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**Paul M. Alsing, Howard A. Blair, Matthew Corne\*** (cornem@uwstout.edu), **Gordon Jones, Warner A. Miller, Konstantin Mischaikow** and **Vidit Nanda**. *Topological Signatures of Singularities in Ricci Flow*.

We apply the methods of persistent homology to investigate singularity formation in a selection of geometries evolved numerically by Ricci flow. To implement persistent homology, we construct a triangular mesh for a sample of points. The scalar curvature along the edges of the triangulation, computed as an average of scalar curvatures at the endpoints of the edges, serves as a filtration parameter at each time step. We analyze the characterization of geometric criticality obtained from the application of persistent homology to a two-dimensional rotational solid that collapses and three-dimensional dumbbells that manifest neckpinch singularities under Ricci flow. Finally, we discuss the interpretation and implication of these results and future applications. (Received September 21, 2015)