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Jared Speck* (jspeck@math.mit.edu), Massachusetts Institute of Technology, Department of Mathematics, 77 Massachusetts Ave, Bldg. 2 Rm. 265, Cambridge, MA 02139-4307. *Breakdown Results for Solutions to Hyperbolic PDEs.*

In the last decade, there has been a flurry of research activity that, for solutions to various nonlinear hyperbolic PDEs with ties to geometry and physics, has yielded i) proofs of stable breakdown, ii) sharp information about the nature of the breakdown, and iii) a detailed description of the mechanisms driving it. One type of breakdown is the formation of a singularity, but other types of breakdown are also possible. The most significant advancements have occurred in the setting of more than one spatial dimension, where new ideas are needed to complete the proofs compared to the case of one spatial dimension. In this talk, I will survey some of these results and, in the relevant cases, highlight the role that geometry plays in the proofs. Some of the works that I will describe are joint with G. Holzegel, S. Klainerman, J. Luk, and W. Wong. (Received July 11, 2017)