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**Shuang Miao\*** ([shmiao@umich.edu](mailto:shmiao@umich.edu)). *On shock formations for 3d wave equations.*

In this talk I will present a geometric perspective on shock formations for a class of 3-dimensional quasilinear wave equations which admit global smooth solutions with small data. We exhibit a family of smooth initial data leading to breakdown of smoothness of the solutions. The work combines the ideas from fluid mechanics e.g. shock formation for compressible Euler equation and from general relativity e.g. formation of trapped surfaces. This is a joint work with Pin Yu. (Received August 10, 2015)