Geng Chen, Tao Huang* (txh35@psu.edu) and Chun Liu. Eulerian Description of Variational Wave Equation and Singularity Formation.

We study the formation of finite time singularities in the form of super norm blowup for a spatially inhomogeneous hyperbolic system. The system is related to the variational wave equations as those in [?]. The system possesses a unique $C^1$ solution before the emergence of vacuum in finite time, for given initial data that are smooth enough, bounded and uniformly away from vacuum. At the occurrence of blowup, the density becomes zero, while the momentum stays finite, however the velocity and the density of the energy are both infinity. (Received January 20, 2014)