

Abstract Submitted
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Baroclinic Turbulence in Accelerated Inhomogeneous Flows¹

NORMAN ZABUSKY, Rutgers University — This talk presents an overview and recent understanding of *accelerated inhomogeneous flows* (AIFs) or shock-accelerated Richtmyer-Meshkov flows. We use the vortex paradigm and the visiometric approach. We “project” data to lower dimensions to quantify, validate simulations of and model phenomena involving coherent space-time events. We emphasize our recent work,^{2,3} including vortex induced *secondary baroclinic circulation generation* which yields more positive and negative circulation through intermediate times than the original shock-accelerated vortex deposition. In addition we quantify the effects of the initial *thickness* of the interfacial transition layer and the ubiquity of vortex projectiles and transition to turbulence for the shock-curtain interaction.

¹Work done in collaboration with Shuang Zhang and Gaozhu Peng.

²Shuang Zhang , Jian Chen and Norman J. Zabusky “Turbulent Decay and Mixing of accelerated inhomogeneous Flows via a Feature Based Analysis” SIAM J. Sci. Comput. '04 **26**,, pp. 86–10.

³Shuang Zhang, Norman J. Zabusky, Gao-Zhu Peng , “Vortex dynamics and baroclinically forced inhomogeneous turbulence for shock - planar heavy curtain interactions” J. of Turbulence, '05.

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