

Abstract Submitted
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Particle Laden Flows from Theory to Experiment¹ ANDREA BERTOZZI, Univ of California - Los Angeles — Leo Kadanoff inspired a generation of collaboration across the boundaries of applied mathematics, theoretical physics, engineering, and experimental physics. His influence is seen in laboratories, classrooms, PhD theses, and even undergraduate research across the world. In this talk I review a body of research at UCLA spanning the past ten years in which we have worked to understand the basic physics of particle laden flow by comparing experiments with mathematical models. The project was inspired by some initial experiments and models developed by A. Hosoi's group at MIT. We derive and analyze systems of conservation laws with rich behavior that includes multiple shocks, rarefactions, and singular shocks - and study these along side laboratory experiments. Our work includes both basic physics problems and industrial applications such as spiral separators used in the mining industry.

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