

ACMS Applied Math Seminar

Wuchen Li

University of South Carolina

Thursday, September 15, 2022

154 Hurley Hall

3:30 PM – 4:30 PM



Controlling Regularized Conservation Laws via Entropy-Entropy Flux Pairs

In this talk, we study a class of variational problems for regularized conservation laws with Lax's entropy-entropy flux pairs. We first introduce a modified optimal transport space based on conservation laws with diffusion. Using this space, we demonstrate that conservation laws with diffusion are "flux-gradient flows". We next construct variational problems for these flows, for which we derive dual PDE systems for regularized conservation laws. Several examples, including traffic flow and Burgers' equation, are presented. Incorporating both primal-dual hybrid gradient algorithms and monotone schemes, we successfully compute the control of conservation laws. This is based on a joint work with Siting Liu and Stanley Osher.

The Department of Applied and Computational
Mathematics and Statistics

Please visit acms.nd.edu to view the full list of speakers.