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*Stabilization, Extension and Unification of the Lattice Boltzmann Method Using Information Theory*

The Lattice Boltzmann Method (LBM) is an increasingly popular method for simulating fluids, particularly in complex geometries. However, it is well known to suffer from numerical instabilities in certain flow regimes. In this talk I will discuss how one can use Information Theory to improve the stability of the LBM while uniting two alternative stabilization approaches. Finally I will discuss how this viewpoint suggests interesting avenues for expanding the use cases for the LBM.