Amit Einav

The Almost Cercignani Conjecture on Kacs Sphere

The validity, and invalidity, of Cercignanis Conjecture in Kacs many particle model, is a prominent problem in the field of Kinetic Theory. In its heart, it is an attempt to find a functional inequality, which is independent of the number of particles in the model, that will demonstrate an exponential rate of convergence to equilibrium. Surprisingly enough, this simple conjecture and its underlying functional inequalities contain much of the geometry of the process, and any significant advances in its resolution involves intradisciplinary approach.

In this talk I will present recent work with Eric Carlen and Maria Carvalho, where we have defined new notions of chaoticity on the sphere and managed to give conditions under which an almost conjecture is valid. With that in hand, I will show how Kacs original hope to conclude a rate of decay for his models limit equation from the model itself, is achieved.