**Abstract:** Asymptotic Representation Theory is concerned with taking limits within the context of Representation Theory. It was a key insight of Vershik and Kerov from the 1970s  that such limiting questions should be viewed and analyzed as the study of statistical mechanical systems. This idea in turn gave rise to Integrable Probability: the study of probabilistic models with underlying algebraic structure. I will talk about one of the recent developments in this field: the solution of the Kerov’s conjecture from 1992 classifying Gibbs measures on the Young graph with Macdonald multiplicities; its connections to total positivity and vertex models.