## Title: The DiPerna-Majda 2D Gap Problem

Abstract: In a series of influential papers in the 1980s, DiPerna and Majda introduced a rigorous framework of approximate solutions of the Euler equations and proved several results concerning concentration of solutions related to hypothesis on  $\omega := \operatorname{curl} u : \mathbb{R}^2 \times [0,T] \to \mathbb{R}$  the *vorticity* and  $\omega_0 := \operatorname{curl} u_0 : \mathbb{R}^2 \to \mathbb{R}$  the *initial vorticity*. Briefly, they proved that for vorticities bounded in an  $\alpha$  log-Morrey space one does not have any concentration for  $\alpha > 1$ , while for  $\alpha \leq 1/2$  one may have *concentration-cancellation*. The interval  $\alpha \in (1/2, 1]$  remained an open question in their paper and subsequent papers, whether one can rule out concentration or find sequences which admit concentration-cancellation. In this talk I discuss a recent result in collaboration with Oscar Dominguez in which we resolve this question, closing the gap, showing in particular that one may have concentration-cancellation up to  $\alpha = 1$ .