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**Colm Connaughton\*** (connaughtonc@gmail.com), Mathematics Institute, University of Warwick, Coventry, CV4 7AL, England. *Coherent Structures Resulting from "Energy Condensation" in 2D Inverse Cascades.*

In a finite two-dimensional turbulent flow with sufficiently weak frictional dissipation at large scales, the inverse energy cascade eventually reaches the size of the system. When this happens, energy accumulates at the scale of the system in a process dubbed "energy condensation". This process leads to the emergence of a smooth, coherent flow at the largest scales which co-exists with background turbulent fluctuations whose statistical properties can be strongly modified by the large scales. For a standard biperiodic box, this coherent flow is a simple vortex dipole. In this talk, I will briefly review what we know about this phenomenon and present some numerical studies which aim to understand how the coherent structures emerging from "energy condensation" are influenced by "large scale" modifications of the flow such as variations in aspect ratio or incorporation of physical boundaries. (Received August 19, 2007)