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Coarsening in the 2D Incompressible Toner-Tu Equation: Signatures of Turbulence NAVDEEP RANA, PRASAD PERLEKAR, Tata Institute of Fundamental Research, Hyderabad — We investigate coarsening dynamics in the two-dimensional (2D), incompressible Toner-Tu equation. We show that coarsening proceeds via vortex merger events, and the dynamics crucially depend on the Reynolds number (Re). For low Re, the coarsening process has similarities with Ginzburg-Landau dynamics. On the other hand, for high Re, coarsening shows signatures of turbulence. In particular, we show the presence of an enstrophy cascade from the inter-vortex separation scale to the dissipation scale.

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