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Fine Structure in Energy Dissipation at the onset of turbulence under oscillatory Flow RUMA DUTTA, University of Southern Mississippi, S. SAJJADI, Embry-Riddle Aeronautical University, FLUID DYNAMICS TEAM, MATHEMATICS TEAM — Fine structure formation studies have been an active area of research in recent past and is very much associated in turbulence phenomena. The large scale structures are of low width and contain most of the energy which dominates transport of mass, momentum and heat. The small scales include dissipative range responsible for most of the energy dissipation and inertial range. Since small scales contain most of interesting formation of structures in terms of physics and simulation that is the most obvious reason we are interested in fine structure formation of the small scale turbulence structure. The analytical side of studies focus mostly on the singularities of Navier Stokes equation have natural connection to far away dissipation range. Small scale turbulence is a fertile ground for studying on vortex breakdown and reconnection that carries many interesting physics. Research on small scale turbulence have remarkable influence heat transfer and particle/chemical phenomena. In this work, we intend to focus on numerical investigation of dynamics of vortex structure of small scale at the onset of turbulence at various Reynold number.

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