

Abstract Submitted
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Elasto-Inertial Turbulence in polymeric flows VINCENT TERRAPON, University of Liege, YVES DUBIEF, University of Vermont, JULIO SORIA¹, Monash University — The dynamics of elasto-inertial turbulence (EIT) is investigated numerically from the perspective of the coupling between polymer dynamics and flow structures. In particular, direct numerical simulations of channel flow with Reynolds numbers ranging from 1000 to 6000 are used to study the formation and dynamics of elastic instabilities and their effects on the flow. Based on the splitting of the pressure into inertial and polymeric contributions, it is shown that the trains of cylindrical structures around thin sheets of high polymer extension that are characteristics to elasto-inertial turbulence are mostly driven by polymeric contributions.

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