

Study of the Turbulent Energy Spectrum Build Up in an Experimental Vortex Burst

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We present an experiment where a stretched vortex is experiencing quasi-periodical turbulent bursts inside a laminar environment. It is shown that the velocity fluctuations resulting from the bursts are responsible for the build up of a turbulent $k^{-5/3}$ spectrum. Benefiting from the quasi periodicity of the bursts, we have developed a data post processing that allow to characterize the build up of the turbulent spectrum with time. This analysis is particularly motivated by an existing theoretical framework for the energy transfer in that type of structure, notably the Lundgren mechanism.

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