

Abstract Submitted  
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**Triad interactions induced by vortex shedding in a free jet in air.** MARGHERITA DOTTI, Department of Chemical and Biochemical Engineering, Technical University of Denmark, Lyngby, Denmark, PREBEN BUCCHAVE, Intarsia Optics, Snderskovvej 3, 3460 Birkerd, Denmark, CLARA M. VELTE, Department of Mechanical Engineering, Technical University of Denmark, Lyngby, Denmark — The non-linear processes caused by the convection term in the Navier-Stokes equation are of fundamental importance for both the understanding of turbulence and modelling turbulent flows. These so-called triad interactions in Fourier space were investigated by measuring a single Fourier mode injected into the initial part of a round, free jet in air. We studied the development of the measured velocity power spectrum as a function of the downstream distance. Furthermore, the development of the downstream velocity was also calculated by means of a simple, one-dimensional computer model. The comparison between the measured power spectra and the computational ones showed a good agreement between them, allowing us to draw some interesting conclusions regarding the fundamental non-linear processes in turbulence.

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