

LadHyX Seminar – April 4th, 10:45

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Vortex-induced vibrations and energy harvesting

Any bluff body immersed in a flow causes vortex structures to form under certain regimes. The dynamics of these structures can then interact with those of the body if it possesses a certain flexibility and/or resonant natural frequency. This is known as fluid-structure interaction (FSI), a phenomenon widely encountered in practice and which can be the source of significant vibrations. Cylindrical structures subjected to flow typically undergo transverse oscillations called vortex-induced vibrations (VIV), which can be detrimental to engineered structures or a source of inspiration for the development of energy extraction devices. We have set up a new experimental oscillating cylinder device coupled to a mechatronic solution to vary the mechanical parameters of the oscillator and study their influence on the energy extracted from the vibrations.