

LadHyX Seminar – November 7th, 10:45

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**Application of resolvent analysis to spatially periodic systems and turbulent flows**

The first part of the seminar is devoted to instabilities in spatially periodic systems. The stability analysis is based on a Bloch wave formalism and is applied to the flow over a rough wall. It appears that the system exhibits geometric frustration, i.e. the inability of a system to find a unique optimal state. In the second part of the seminar, the application of resolvent analysis to the characterisation of acoustic fields is discussed. The method is based on the linearisation of compressible RANS equations closed by a Spalart-Allmaras model. A new standard including turbulent kinetic energy is proposed. Finally, two cases are studied: trapped modes in a compressible jet at  $Ma = 0.9$  and the noise generation mechanisms in the flow around a NACA 0012 profile.