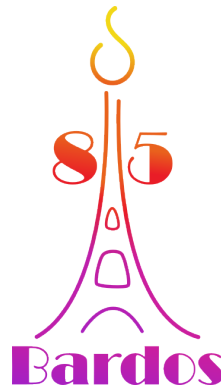


Spectral inequalities, observability and stabilisation of heat and waves equations with rough terms

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In this talk we review some classical and recent results relating the uncertainty principles for the Laplacian with the controllability and stabilisation of some linear PDEs. The uncertainty principles for the Fourier transforms state that a square integrable function cannot be both localised in frequency and space without being zero, and this can be further quantified resulting in unique continuation inequalities in the phase spaces. As a consequence, we obtain some corollaries on the decay rate of damped waves with rough dampings, the simultaneous controllability of heat equations with different boundary conditions and the controllability of the heat equation with rough controls. This talk is based on some joint works with G. Lebeau (Nice) and N. Burq (Orsay).



In honor of Claude Bardos's 85th birthday