

Null-controllability of underactuated linear parabolic-transport systems with constant coefficients

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I will present controllability properties of mixed systems of linear parabolic-transport equations, with possibly nondiagonalizable diffusion matrix, on the 1D torus, coupled by constant coupling terms. The distributed control acts through a constant matrix, with possibly less controls than equations. In small time or for not regular enough initial data, these systems are never controllable, whereas in large time, null-controllability holds, for regular initial data, iff a spectral Kalman rank condition is verified. This is a joint work with Armand Koenig.

Orateur: LISSY, Pierre