

Control of Parabolic Equations

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One of the main goal in control theory is to drive the state of the system to a given configuration using a control that acts through a source term located inside the domain or on the boundary.

The reference works for the control of linear parabolic problems are due to H.O. Fattorini and D.L. Russell, in the 70's for the one dimensional case and to A.V. Fursikov, O.Yu. Imanuvilov, on one side and G. Lebeau, L. Robbiano, on the other side both in the 90's for the multi-dimensional case. They established null-controllability of heat equations with distributed or boundary controls at any time $T > 0$ and for any control domain.

Recently, several studies of control of parabolic equations have revealed new behaviors as, for instance, minimal time of control, geometrical dependence on the location of the control. The aim of this talk is to try to unify these examples.