

Insensitizing Control Results in Fluid Mechanics

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Abstract

In this talk, we discuss some recent controllability results for fluid models, focusing on the Navier–Stokes system. We use an insensitizing control approach to guide the velocity field toward a desired trajectory, following the classical duality framework of J.-L. LIONS [1]. Our analysis focuses on precise Carleman estimates for the linearized system, results on local controllability [2, 3, 4] and more recent progress in fluid control theory [5].

We will go over the main ideas, showing how Carleman inequalities are used to construct controls through the Hilbert Uniqueness Method (HUM). We will also mention some open problems for more complex fluid models.

This work is in collaboration with: **N. Carreño**.¹

References

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