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17. Control Theory and Optimization

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Dynamical shape optimaization in Navier-Stokes equations.

We study a dynamical shape optimisation problem in a non-cylindrical Navier-Stokes flow. The purpose is to determine the optimal tube descirbed by the flow during a fiven finite time-interval in order to bring it to rest. It consists in searching the non-autonomous vector field that builts such tube. The particularity of that problem is the necessarity to introduce two adjoint states to be able to derive the optimal necessary condition. This work is jointly done with Prof. Jean Paul Zolesio, France.