

ON THEORETICAL AND NUMERICAL CONTROL AND INVERSE PROBLEMS

ENRIQUE FERNÁNDEZ CARA*

This talk is devoted to recall several control and inverse problems that we have been considering since more than thirty years. For reasons of time, we will give details only on contributions concerning

- The null controllability of Navier-Stokes and some similar systems.
- The boundary controllability properties of non-scalar systems.
- Control and inverse problems for free-boundary systems.
- Bi-objective and hierarchical control problems.
- Controlling equations with nonlocal terms in time and space.

We will also indicate several open problems that can motivate our work in the next future. The contributions have been obtained in collaboration with several people, among them A. Doubova, M. González-Burgos, I. Marín-Gayte and D.A. Souza.

*Departamento de Ecuaciones Diferenciales y Análisis Numérico, Universidad de Sevilla