

# AN OVERVIEW OF THE COMPUTATION OF INVARIANT MANIFOLDS FOR PDE's

*JOAN SÁNCHEZ UMBRÍA*

Departament Física Aplicada, UPC

The continuation of fixed points of large-scale dynamical systems (ODE/DAE) obtained by discretizing systems of elliptic and/or parabolic PDE has been a common tool used by researchers in Nonlinear Elasticity and Fluid Mechanics since the late seventies. The efficient computation of other invariant objects by other means than just time evolution is very recent. Algorithms based on Newton-Krylov techniques used to compute periodic orbits, invariant tori, and 2D unstable manifolds of periodic orbits will be presented. I will focus on the implementation of the multiple shooting algorithm for periodic orbits, and on the comparison of two algorithms for the computation of invariant tori.