

Department of Mathematics

University of Houston

Scientific Computing Seminar

Prof. Gianluigi Rozza

International School for Advanced Studies

Mathematics Area, mathLab, Trieste, Italy

Recent advances on reduced order modelling for viscous and thermal flows in parametrized settings: focus on stability and bifurcations

Thursday, March 12, 2015

1:30 PM- 2:30 PM

Room 646 PGH

Abstract: Some recent developments of reduced order modelling (ROM) in computational fluid dynamics for viscous incompressible flows will be discussed. The main topics will deal with the use of combined ROM techniques currently available, efficient sampling procedures, inf-sup pressure stabilization for ROM approaches, error bounds, computational performances. Spectral elements method is used for basis generation. Some emphasis will be given to the stability of flows and steady and Hopf bifurcations and numerical techniques for their detections by the eigenvalues computed with reduced order models. Numerical results will be applied to classical benchmarks study cases and to the Coanda effect in cardiac blood flow simulation, provided as guideline and perspective application. Work in collaboration with G. Pitton (SISSA) and A. Quaini (U.of Houston).

This seminar is easily accessible to persons with disabilities. For more information or for assistance, please contact the Mathematics Department at 743-3500.