LadHyX Seminar – May 21th, 10:45

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Linear and non-linear dynamics of pulsatile flow in a torus

Curved pipes are ubiquitous in fluid problems in engineering and biology, and the flow through them is often unsteady such as in blood flow in the cardio-cascular system. Pulsating flow in curved geometries exhibits a rich interplay between inertia, curvature-induced secondary motion, and unsteady forcing. In this work, we examine both the nonlinear dynamics of the periodic orbits of flow in toroidal pipes forced by periodic pulsations and their linear Floquet stability, focusing on how curvature and periodic driving jointly affect the secondary flow dynamics and the stability characteristics.