Modalità d'esame: Seminar
Tipologia: Avanzato
Titolo: Non-autonomous dynamical systems: invariant manifolds and chaos
Periodo: febbraio-marzo
Docente: Matteo Franca
Ore: 20

Abstract:
After reviewing the concept of stability of a critical point for an O.D.E. we shall start by introducing stable and unstable manifolds for critical points of an autonomous O.D.E. (which generalize stable and unstable spaces of the linear case). Then we will see how these concepts are extended in a non-autonomous context. Afterwards we will give the main ideas concerning the horseshoe construction and the presence of chaotic phenomena arising near transversal intersections between stable and unstable manifolds. Finally we give some hints on Melnikov theory which establishes some conditions sufficient for the persistence of homoclinic trajectories to perturbations and the insurgence of chaos.