

Abstract

This thesis is a presentation of getting a dynamical system from a system of differential equation. We study the relations among types of stability namely the three well known Lagrange, Lyapunov, Poisson, and our new types semi-Lagrange, semi-Lyapunov and semi-Poisson on one hand and the relations among Lagrange stability, semi-Lagrange and dynamical properties such as minimal, almost periodic, semi-almost periodic and recurrent on the other hand as well as describing the relation of them with $\alpha\{\omega\}$ limit point.

Moreover the relation between expensive or unstable and chaos is presented.