

Seminario de Matemáticas

Basic facts on topological bifurcation theory

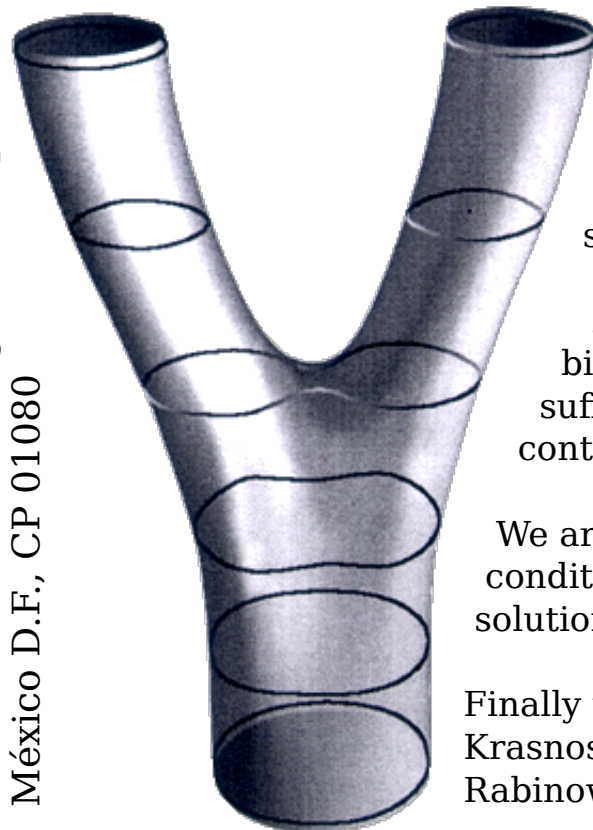
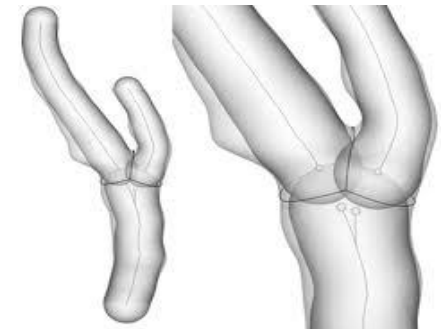
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Many of the problems of mathematics and mechanics reduces to the study of zeros of continuous families of mappings $f : \mathbb{R}^n \times \mathbb{R} \rightarrow \mathbb{R}^n$. Bifurcation theory is a branch of mathematics investigating a structure of the set of solutions of the equation

$$f(x, \lambda) = 0 \quad (E)$$

under changing parameter $\lambda \in \mathbb{R}$.



More precisely speaking, assume that

$$f : \mathbb{R}^n \times \mathbb{R} \rightarrow \mathbb{R}^n$$

is a continuous map such that $f(0, \lambda) = 0$ for all $\lambda \in \mathbb{R}$. The purpose of my talk is to study solutions of (E) satisfying $x \neq 0$.

A point $(0, \lambda_0) \in \mathbb{R}^n \times \mathbb{R}$ is said to be a bifurcation point of solutions of (E) if any sufficiently small neighborhood of $(0, \lambda_0)$ contains a solution (x, λ_1) such that $x \neq 0$.

We are going to formulate necessary and sufficient conditions for the existence of bifurcation points of solutions of (E) .

Finally we will formulate some versions of the famous Krasnosel'skii local bifurcation theorem and Rabinowitz' global bifurcation theorem.

Jueves 3
Septiembre

16:00 hrs

Sala SA1

ENTRADA
LIBRE