



# Introduction to Diffeology

November 21 - December 2, 2016

Galatasaray University, Istanbul, Turkey

This course will **introduce** the following subjects with examples and exercises.

A 12 hours course\* by Patrick Iglesias-Zemmour, in the framework of the Program on Diffeology Studies, managed by Serap Gürer, sponsored by **Tubitak-Galatasaray** for the years 2016-17-18, and supported by the Consortium.

\* <http://math.huji.ac.il/~piz/documents/AITD.pdf>

1. Diffeological Spaces, Smooth Maps, the Category {Diffeology}, Fineness etc.
2. Operations on Diffeologies: Products, Sums, Parts, Quotients.
3. Functional Diffeology.
4. Local Smooth Maps, D-Topology.
5. Homotopy: Definition of Higher Homotopy Groups, Relative Homotopy Long Sequence.
6. Differential calculus: Definition of Differential Forms, De Rham Cohomology, Chain-Homotopy Operator, Homotopic Invariance of De Rham Cohomology.
7. Fiber Bundles: Definition, Long Exact Sequence in Homotopy, Homotopic Equivalence of Pullbacks, Connections etc.

**Galatasaray Üniversitesi,**  
**Çırağan Cad. No:36,**  
**34349 Ortaköy/İstanbul**

*Inscription : Serap Gürer <sgurer@gsu.edu.tr>*

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