DOCTORAL PROGRAMME IN MATHEMATICAL SCIENCES

In the framework of the activities of the PhD programme in Mathematical Sciences

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Prof. Maria Manuel Clementino

Universidade de Coimbra

will offer a PhD course on

Categorical Methods in Algebra and Topology

Abstract

This course focuses on relevant contributions of category theory to the study of algebraic and/or topological structures. It consists of two distinct chapters.

In the first part we will study the behaviour of semi-abelian topological algebras, analysing how many of the classical results on topological groups can be extended to these topological algebras. Among them we will study products and quotients; connected, Hausdorff, compact and locally compact algebras; semidirect products and split exact sequences.

The second part will be dedicated to monoidal topology. We will start by recalling the properties of monads and Eilenberg-Moore algebras that will be needed throughout. Then we will introduce the notion of (T,V)-category and (T,V)-functor and show that the combination of their double origins -- as lax Eilenberg-Moore algebras and as generalised enriched categories -- can be fruitfully used to recover and solve problems on exponentiability and descent for topological structures.

Scheduling

The course will be held at the Department of Mathematics, Via C. Saldini n.50 – Milano

from January 9 to January 24, 2020

from 10.30 to 12.30

with the following scheduling:

Thursday **9,** Monday **13,** Wednesday **15,** Thursday **16,** Tuesday **21,** Wednesday **22,** Thursday **23,** Friday **24**

Room: **Aula Dottorato**, 1st floor