



CENTRO DE  
**MATEMÁTICA**  
UNIVERSIDADE DO PORTO

# CMUP Informal PhD Seminar

2019/2020 – **SESSION 3**

DATE: **MONDAY, NOVEMBER 4, 16H30**

PLACE: **ROOM 1.08** (BUILDING FC1, FCUP)

PROGRAM:

**16h30** - Pedro Silva (UC|UP)

***From Geometry to Algebra and back:  
geometric structures and representations of the fundamental group***

## Abstract:

A geometric structure is a local modeling of a manifold  $M$  on a specified space  $X$  with prescribed symmetry group  $G$ . Such concept of  $(X, G)$ -geometric structure brings together different classical types of manifolds, allowing one to properly globalize Euclidean, affine or projective geometry.

In this talk we will introduce these structures and we will see how they are constrained by the topology of the base manifold  $M$ . It turns out that this relation between the geometry and the topology of  $M$  is clearly revealed through the use of algebraic representations of its fundamental group. This establishes yet one more bridge between geometry and algebra which we will try to further explore.

**17h15** - Coffee break



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