



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP20_DIP_MAT

Visiting Professor Program Academic year 2020/2021

DEPARTMENT OF MATHEMATICS "GIUSEPPE PEANO"

TEACHING COMMITMENT: 48 hours

COURSE TITLE

Topics in Geometry

TEACHING PERIOD

1st term

SCIENTIFIC AREA

Geometry

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

Lie groups and homogeneous spaces. Lie and Engel theorems for nilpotent and solvable. Lie algebras. Semisimple Lie algebras. Criteria for the semisimplicity. Levi semisimple decomposition in its radical and semisimple factor. Structure of classical complex groups: maximal torus, roots, adjoint representation, Weyl group. Theory of maximal weights for representations of semisimple Lie algebras.

LEARNING OBJECTIVES

The course aims to provide to the students the basic concepts of Lie groups, paying particular attention to the examples. These concepts are preparatory to different topics, such as: differential geometry, mathematical physics and representation theory.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES (IF APPLICABLE)

VISITING PROFESSOR PROFILE DESCRIPTION

Expert on Lie groups and Differential Geometry. Teaching Experience on courses about Lie groups.

CONTACT PERSON AT THE DEPARTMENT

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