



Direzione Ricerca,
Innovazione e
Internazionalizzazione

**UNIVERSITÀ
DI TORINO**

ID

VP_150_MAT

Visiting Professor Program Academic Year 2025/2026

TEACHING COMMITMENT: 20 hours

COURSE TITLE

LQG and Canonical Analysis

TEACHING PERIOD

II semester

SCIENTIFIC AREA

Mathematical Physics

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

The course will focus on Loop Quantum Gravity, dealing with some of topics concerned with Hamiltonian formalism, ADM formulation of GR as a gauge theory leading to quantum kinematics and introducing quantum dynamics.

LEARNING OBJECTIVES

The objectives are to obtain a technical grasp on methods of canonical analysis in gauge and gravitational theories given a non-perturbative, background-free, quantization of theories as GR. These tools are used to quantize both gauge theories and relativistic theories.

The course aims to give students a working ability in LQG.

OTHER ACTIVITIES BESIDE THE COURSE

VISITING PROFESSOR PROFILE

The Visiting Professor should be an expert in LQG and in particular in techniques based on canonical analysis of gauge and relativistic field theories.

CONTACT REFERENT

Lorenzo Fatibene

lorenzo.fatibene@unito.it