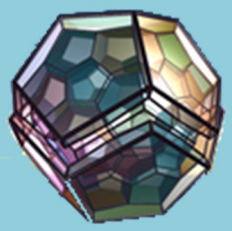

DOCTORAL PROGRAMME IN MATHEMATICAL SCIENCES

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

Prof. **Luigi Lombardi**

University of Milan

will offer a PhD course on

Geometric and numerical invariants of derived categories of sheaves

Abstract

In Algebraic Geometry derived categories of sheaves on projective varieties are ob-jects of homological nature that encode several properties of the underlying varieties. One of the main conjectures relating derived categories to the birational geometry of a variety is that of whether K-equivalent varieties are D-equivalent. In this course we will survey this problem. We will first introduce the general background about derived categories and Fourier-Mukai transforms, and then discuss Bridgeland's result for the 3-dimensional case. If time permits we will also discuss the problem regarding the derived invariance of all Hodge numbers in dimension 3.

Scheduling

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

from 12 December 2023 to 19 January 2024

with the following scheduling:

2.00 pm – 4.00 pm, Tuesday 12 December 2023
10:30 am - 12.30 pm, Thursday 14 December 2023
8:30 am – 10.30 am, Monday 18 December 2023
10:30 am – 12.30 pm, Wednesday 20 December 2023
4.00 pm – 6.00 pm, Wednesday 10 January 2024
1:30 pm – 3.30 pm, Friday 12 January 2024
10:30 am – 12.30 pm, Tuesday 16 January 2024
1:30 pm – 2.30 pm, Friday 19 January 2024

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