



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

Prof. **Niels Benedikter**

University of Milan

will offer a PhD course on

Mathematical Methods for Many-Body Quantum Systems

Abstract

The course will be focused on the analysis of interacting many-body quantum systems and quantum field theories. At the core will be the use of second quantization to derive quantitative rigorous predictions about the physical behavior of systems such as Bose-Einstein condensates, Fermi liquids, polarons, or electrons interacting through quantized electromagnetic fields. Knowledge about quantum mechanics is helpful but not strictly necessary (we will start with a brief mathematical crash course on the formalism of quantum mechanics). On the other hand, basic knowledge of functional analysis (L^2 -spaces, bounded linear operators on L^2 -spaces, Fourier transform) will be assumed.

Scheduling

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

from 8 November 2023 to 13 December 2023

with the following scheduling:

1.30 pm – 4.30 pm, Wednesday 08 November 2023
1.30 pm – 4.30 pm, Wednesday 15 November 2023
12.30 pm – 3.30 pm, Wednesday 22 November 2023
1.30 pm – 4.30 pm, Wednesday 29 November 2023
1.30 pm – 4.30 pm, Wednesday 13 December 2023

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