

FIM Minicourse

Robert Seiringer

(Institute of Science and Technology Austria)

„The Quantum Many-Body Problem and Bose-Einstein Condensation“

Abstract:

A detailed understanding of the behaviour of many-particle systems in quantum mechanics poses a formidable challenge to mathematical physics. From the mathematical point of view, it requires a precise spectral analysis of the corresponding Hamiltonian operator. The recent experimental advances in cold-atom physics have led to a renewed interest in studying the quantum many-body problem. The purpose of these lectures is to explain part of the progress that was made in the last decade or so. The topics covered include the question of existence of Bose-Einstein condensation, superfluidity and quantised vortices in systems in rotating traps, as well as recent investigations on the structure of the excitation spectrum for weakly interacting fluids. We will describe the mathematics involved in understanding these phenomena, starting from the underlying many-body Schrödinger equation.

March 4 - 13, 2015

HG G 19.1, ETH Zürich, Rämistrasse 101

Wednesday March 4, 14:15 - 16:00
Friday March 6, 11:15 - 13:00

Wednesday March 11, 14:15 - 16:00
Friday March 13, 11:15 - 13:00

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