
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Algebraic Geometry and Representation Theory Seminar

Room 155 ,Ziskind Building
on Tuesday, Dec 25, 2018at 11:15

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Symmetries of the hydrogen atom and algebraic families

Abstract:

The hydrogen atom system is one of the most thoroughly studied examples of a quantum mechanical system. It can be fully solved, and the main reason why is its (hidden) symmetry. In this talk I shall explain how the symmetries of the Schrödinger equation for the hydrogen atom, both visible and hidden, give rise to an example in the recently developed theory of algebraic families of Harish-Chandra modules. I will show how the algebraic structure of these symmetries completely determines the spectrum of the Schrödinger operator and sheds new light on the quantum nature of the system. No prior knowledge on quantum mechanics will be assumed.