IFWGP´07 | International Fall Workshop on Geometry and Physics

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Title: Introduction to Quantum Mechanics

Abstract:
The purpose of this talk is to give an introduction and overview of Quantum Mechanics for mathematicians. I will start by discussing the "kinematical" aspects of the theory, in particular the necessary mathematical structures (algebras of observables and their Hilbert space representations). I will then consider its "dynamical" aspects, in particular the obtention of unitary evolution operators defined by quantum Hamiltonians through the solution of the Schr\"odinger equation. Finally I will expend some time discussing physical issues concerning the probabilistic interpretation of the formalism, the outcome of physical measurements on quantum systems, and the emergence of classical reality.