CRISTINA STOICA, Wlifrid Laurier University
Super-integrable systems with stochastic perturbations

In the physical world, many systems are subject to stochastic perturbations. The latter are often responsible for removing the symmetries of the ideal unperturbed systems. However, within the class of Hamiltonian systems, the framework of J-M. Bismut ("Mecanique Aleatoire", Springer 1981) permits stochastic inputs while preserving the Hamiltonian structure and, under appropriate constraints, some or even all of the symmetries of the deterministic system. Developed further in the last decades, the theory of stochastic geometric mechanics displays many interesting features and open questions. In this talk I will present the case study of two super-integrable systems: the two-dimensional harmonic oscillator and the Kepler problem.

This work is joint with Archishman Saha (University of Ottawa).