Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

Tuesday, February 10, 2015, 1:00 pm in 243 Altgeld Hall

Boris Shapiro (Stockholm University)

Around Bochner-Krall problem

Abstract: A linear differential operator with polynomials coefficients is called {\it exactly solvable} if the degree of each is at most and there exists all least one value of for which the equality holds. One can easily see that such operators are have one eigenpolynomial in every sufficiently large degree. Already in 1929 S.Bochner asked for which exactly solvable operators the corresponding sequence of eigenpolynomials consists of orthogonal polynomials. This problem was considered in large numbers of publications over many decades. I will present modern results about the root asymptotics for sequences of eigenpolynomials of exactly solvable operators, several conjectures and the relation of the latter root asymptotics to quadratic and higher order differentials in the complex plane.

Video