

Orthogonal polynomials with ultra-exponential weight functions: an explicit solution to the Ditkin-Prudnikov problem

01.09 **Semyon Yakubovich***(Faculdade da Ciências, Universidade do Porto, Portugal)***Time:** Thursday 25.07., 10:30 - 11:00, Room AM

Abstract: In this talk we give an interpretation of new sequences of orthogonal polynomials with ultra-exponential weight functions in terms of the so-called composition orthogonality. The 3-term recurrence relations, explicit representations, generating functions and Rodrigues-type formulae are derived. The method is based on differential properties of the involved special functions and their representations in terms of the Mellin-Barnes and Laplace integrals. Certain advantages of the composition orthogonality are shown to find a relationship with the corresponding multiple orthogonal polynomial ensembles.