UNIVERSITY OF AVEIRO
Department of Mathematics

Complex and Hypercomplex Analysis

SEMINAR

on

COMPLEX AND HYPERCOMPLEX ANALYSIS

Sousa Pinto, Departamento de Matemática

20/10/2022, 14:00

Hahn multiple orthogonal polynomials of type I

Juan Díaz
Universidade de Aveiro

Multiple orthogonal polynomials naturally appear in the Hermite-Padé theory of simultaneous approximations. They are related to problems in number theory and recently in applications to random matrix theory and markov chains. However, although many multiple orthogonal polynomials of type II have already been explicitly found, there is a lack for analogous expressions for multiple orthogonal polynomials of type I. Discrete Hahn multiple orthogonal polynomials of type I is one of those families that lack such expressions. We have succeeded in the finding of such an explicit expression in terms of Kampé de Fériet series. Through limit relations and inspired by the Askey scheme we also succeed in finding hypergeometrical expressions for the multiple orthogonal polynomials of type I for the Jacobi-Piñeiro, Meixner I, Meixner II, Kravchuk, Laguerre I, Laguerre II and the Charlier families.

This is a joint work with Ana Foulquié, University of Aveiro, Amílcar Branquinho, University of Coimbra and Manuel Mañas, University Complutense of Madrid.

This seminar is supported by CIDMA - Center for Research and Development in Mathematics and Applications, and FCT - Fundação para a Ciência e a Tecnologia with references UIDB/04106/2020 and UIDP/04106/2020,.

CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

REPÚBLICA PORTUGUESA

FCT Fundação para a Ciência e a Tecnologia