

## On the second-order holonomic equation for Sobolev-type orthogonal polynomials

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In this talk it is considered a general approach to the study of orthogonal polynomials related to Sobolev inner products which are defined in terms of divided-difference operators having the fundamental property of leaving a polynomial of degree  $n - 1$  when applied to a polynomial of degree  $n$ . The main focus is on analytic properties for the orthogonal polynomials, including the second-order holonomic difference equation satisfied by them. (This talk is based on the paper Rebocho, Maria das Neves, On the second-order holonomic equation for Sobolev-type orthogonal polynomials. Appl. Anal. 101 (2022), no. 1, 314–336.)