New trends on orthogonal polynomials in Sobolev spaces

03.01   **Francisco Marcellán and Juan J. Moreno–Balcázar**
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Abstract: In this presentation we will analyze some recent trends in the theory of orthogonal polynomials with respect to Sobolev inner products defined for vector of measures supported either on the real line or the unit circle respectively. Analytical and computational approaches will be discussed. In the first case we will focus the attention on asymptotic properties of such polynomials as well as the distribution of their zeros. In the second one, we will study questions related to boundary value problems for differential equations and Sturm-Liouville theory.