



# **AQuA25**

## ***Approximation, Quadrature, and Applications***

Santa Margherita di Pula, Italy  
October 9–11, 2025



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The event is organized within the activity of the *PRIN 2022 PNRR AQuAInt - Approximation and Quadrature for Applicative Integral Models*, based on the collaboration of two research units University of Cagliari and University of Basilicata.

The goal of the conference is to share knowledge and last research on the following topics: approximation by linear and nonlinear operators, numerical integration, orthogonal polynomials, integral equations, inverse problem and applications of integral models, and related issues in numerical linear algebra.



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The conference is organized with the patronage of the University of Cagliari.





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## $\sigma$ -ORTHOGONAL POLYNOMIALS ON THE SEMICIRCLE

M. P. Stanić, T. V. Tomović Mladenović, **A. S. Milosavljević**

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Orthogonal polynomials on the semicircle and the corresponding quadratures of Gaussian type were introduced and studied by Gautschi and Milovanović for the first time in [1]. In the real case quadrature rules with multiple nodes [3] are observed. A special case of polynomials whose zeros are these multiple nodes are given by the so-called  $s$ -orthogonality conditions, and the general case involves  $\sigma$ -orthogonality conditions [2]. The  $s$ -orthogonal polynomials on the semicircle are considered in [4]. We introduce  $\sigma$ -orthogonal polynomials on the semicircle and give a detailed study in three special cases where the weight function is the Chebyshev weight function of the first kind.

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