The electrostatic partners. A Novel Approach to Understanding the Zeros of Orthogonal Polynomials?

Ramón Orive[1]

Universidad de La Laguna, Spain. rorive@ull.es

Abstract

The so-called *electrostatic partners* of the orthogonal polynomials were introduced in [1], with the main purpose to provide an electrostatic interpretation of the *Hermite-Padé* (or *multiple*) orthogonal polynomials, following the seminal method proposed by T. J. Stieltjes in the late 19th century. More recently [2], this new tool has also proved its usefulness in studying the electrostatics of the zeros of a wide class of *orthogonal polynomials on the Unit Circle* (OPUC).

In this talk, In this talk, we take a brief look at these topics. This is based on joint works with A. Martínez Finkelshtein (Baylor Univ., TX, USA), J. Sánchez Lara (Univ. Granada, Spain) and D. Seco (ULL, Spain).

Dedicated to my friend and colleague Miodrag, on the occasion of his 65th birthday.

References

1. A. Martínez Finkelshtein, R. Orive, J. Sánchez Lara, Electrostatic partners and zeros of Orthogonal and Multiple Orthogonal polynomials, Constr. Approx. 58 (2023), 271–342.
2. R. Orive, J. Sánchez Lara, D. Seco, Optimal Polynomial Approximants and Orthogonal Polynomials on the Unit Circle. An electrostatic approach, preprint arXiv:2507.15488