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AN ELECTROSTATIC INTERPRETATION OF THE ZEROS OF THE FREUD-TYPE ORTHOGONAL POLYNOMIALS*

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Abstract. Polynomials orthogonal with respect to a perturbation of the Freud weight function by the addition of a mass point at zero are considered. These polynomials, called Freud-type orthogonal polynomials, satisfy a second order linear differential equation with varying polynomial coefficients. It plays an important role in the electrostatic interpretation for the distribution of zeros of the corresponding orthogonal polynomials.

Key words. Freud weights, orthogonal polynomials, zeros, potential theory, semiclassical linear functional.

AMS subject classifications. Primary 33C45, secondary 42C05.

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