

**Laguerre-Angelesco multiple orthogonal polynomials on an  $r$ -star**

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**Abstract:** The classical orthogonal polynomials consist of the Jacobi, Hermite and Laguerre polynomials. These can be generalized in a number of ways to multiple orthogonal polynomials which are orthogonal with respect to a system of  $r$  measures. In this talk we briefly state results of an extension of the Laguerre polynomials, the Laguerre-Angelesco multiple orthogonal polynomials. The Laguerre-Angelesco polynomials are orthogonal with respect to  $r$  measures which all have the same weight function  $|x|^\beta e^{-x^r}$ , each supported on a ray of an  $r$ -star. There are two types of multiple orthogonal polynomials. For each type we give explicit expressions for the polynomials, a differential equation and the asymptotic behavior of the zeros of the polynomials.