
On multivariate classical orthogonal polynomials

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Classical orthogonal polynomials in one variable can be defined as the orthogonal polynomials associated to a moment functional satisfying a Pearson differential equation. We extend this concept to several variables defining classical multivariate orthogonal polynomials as those associated to a moment functional satisfying a matrix analogue of the Pearson differential equation. Furthermore, we generalize some characterizations of classical orthogonal polynomials to the multivariate case.