

CONTINUOUS SOBOLEV ORTHOGONAL POLYNOMIALS ON THE UNIT BALL

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Sobolev orthogonal polynomials in several variables are defined via inner products involving derivation tools such as gradients. Such a kind of polynomials appears for the first time in [2] in a problem related to dwell time for polishing tools in fabricating optical surfaces.

The Sobolev modification of standard multivariate measures by adding another measure involving gradients is studied. We emphasize the particular case when both measures are classical measures on the unit ball.

References

- [1] C. F. Bracciali, A. M. Delgado, L. Fernández, T. E. Pérez, M. A. Piñar, *New steps on Sobolev orthogonality in two variables*, J. Comput. Appl. Math., 235 (2010), pp. 916–926.
- [2] Y. Xu, *Sobolev orthogonal polynomials defined via gradient on the unit ball*, J. Approx. Theory, 152 (2008), pp. 52–65.