

A generalized sampling and weighted approach for constructing polynomial chaos expansions in uncertainty quantification

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We consider the sampling strategy for the recovery of polynomial chaos expansions via least-squares. In particular, we propose a general framework that samples with respect to the (weighted) pluripotential equilibrium measure of the domain, and subsequently solves a weighted least-squares problem. The framework covers both the bounded and unbounded cases. We also discuss a potential application of this approach -- handling arbitrary polynomial chaos expansions. This research is motivated by the application of uncertainty quantification.

References:

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