

Consistency estimates for generalized finite difference methods and selection of sets of influence.

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I will give an overview of the consistency error estimates for generalized finite difference methods relying on polynomial and kernel-based numerical differentiation (Davydov & Schaback, *Numer. Math.*, 132 (2016), 243-269; arxiv:1611.05001; arXiv:1611.04750) and their applications. Closely related to the consistency is the question of the selection of local sets of influence (stencil supports) which will be addressed in particular in the context of solving elliptic PDEs on adaptively refined sets of centers (Davydov & Dang, *J. Comput. Phys.*, 230 (2011), 287-304; Dang, Davydov & Hoang, to appear in *Appl. Math. Comput.*, arXiv:1603.07838).