Xu, Zhiqiang; Zhou, Tao
On sparse interpolation and the design of deterministic interpolation points.

Sparse interpolation and the choice of interpolation points in several dimensions, focusing especially on the unisolvency of the aforementioned choice of interpolation points, using polynomial approximations and deterministic approaches are the principal points of this article. Among other things, it is discussed what the minimum number of unisolvent points in various settings are, where the open questions are threefold, namely what are the minimum number of points such that there is a unisolvent set, and what are the smallest numbers of points such that they are automatically unisolvent as soon as they are pairwise distinct. Finally, the authors discuss what are suitable methods to choose points that recover certain sparse functions. Several numerical experiments are given to illustrate the authors’ findings.

Martin D. Buhmann (Gießen)

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