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Deterministic sparse interpolation of black-box multivariate polynomials using Kronecker type substitutions. (Chinese. English summary) [Zbl 07494931]

Summary: In this paper, we propose two new deterministic interpolation algorithms for a sparse multivariate polynomial given as a standard black-box by introducing new Kronecker type substitutions. Let \( f \in \mathbb{R}[x_1, \ldots, x_n] \) be a sparse black-box polynomial with a degree bound \( D \). When \( \mathbb{R} \) equals \( \mathbb{C} \) or a finite field, our algorithms either have better bit complexity or better bit complexity in \( D \) than existing deterministic algorithms. In particular, in the case of deterministic algorithms for standard black-box models, our second algorithm has the current best complexity in \( D \) which is the dominant factor in the complexity.

MSC:
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65D05 Numerical interpolation

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