

Multidimensional superresolution in science and industry

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Already in 1795 the French scientist G. de Prony showed that a univariate linear combination of n exponential terms with unknown real but mutually distinct exponents could be fitted uniquely to $2n$ data samples.

Some recent results in exponential analysis, among which the development of a validated one-dimensional exponential analysis algorithm [1] and the possibility to reconstruct a d -dimensional n -sparse exponential sum from only $(d + 1)n$ samples [2], shed new light on a wide range of practical applications, such as:

- 3-dimensional superresolution radar imaging [5],
- 2- or 3-dimensional direction or angle of arrival problems [3],
- efficient wideband OFDM radar in target detection and tracking [4].

References

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