

Effect of sampling on the parameter estimates of multicomponent transients

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Abstract

The need to estimate the parameters of transient multiexponential signals frequently arises in different areas of applied science. A classical technique that has been frequently used with different modifications is the Gardner transform. Gardner transform is used to convert the original data signal into a convolution model. Converting this model into a discrete type for further analysis depends on the selection of correct sampling conditions. Previously, a relationship between the sampling frequency and the weighting factor in the modified Gardner transform was derived. In this paper, the effect of this relationship on the accuracy of parameter estimates is investigated.

Keywords: Sampling methods, Parameter estimation, Frequency, Discrete transforms, Bandwidth, Convolution, Signal sampling, Integral equations, Multiple signal classification, Deconvolution multiexponential, Gardner transform, sampling, MUSIC, minimum norm

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