

SIGNAL SYNTHESIS AND POSITIVE TIME FREQUENCY DISTRIBUTIONS

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ABSTRACT

A method for obtaining a generalized transfer function (GTF) of a linear time-varying system based on the evolutionary spectral theory is proposed. This GTF can be used to synthesize the signal, and its magnitude squared function results in the signal's positive time-frequency distribution that satisfies the marginals (i.e., a Cohen-Posch TFD). The procedure allows any prior estimate of the GTF to be modified such that the resulting posterior GTF is closest in the least square sense to the prior and satisfies the above mentioned properties. Examples are presented to illustrate the performance of the method.

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