IDENTIFICATION OF NON-MINIMUM PHASE TRANSFER FUNCTION USING HIGHER-ORDER SPECTRUM

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Abstract. The present paper treats the identification of parametric non-minimum phase transfer function. We propose a method of identification based on the inner outer factorization of stable transfer function. It consists of identifying the outer and inner parts of a transfer function separately. The outer part is identified by the use of the second-order spectral estimate from the observed linear process, while the inner part is identified by the use of a higher-order cumulant spectral estimate from the observed process. Respective parameter estimators are determined in the light of asymptotic efficiency. In order to estimate the order of the inner part of a transfer function, a criterion is proposed. It is introduced based on the same principle as in the case of Akaike's AIC.

Key words and phrases: All-pass, asymptotic efficiency, cumulant spectrum, inner function, linear process, minimum phase, non-Gaussian, outer function.