

ABSTRACT

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Eigenvalue Beamforming

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In this paper we address the problem of phase front mismatch in multi-sensor array processing. Our idea is to construct matched subspace beamformers for phase fronts that are wrinkled and which wiggle from snapshot to snapshot, and matched direction beamformers for phase fronts that are only wrinkled. In the construction of these beamformers, a Slepian subspace is steered around in bearing, and eigenvalues of an MVDL error covariance matrix are used as beamformers.

Detection and Estimation in Iteratively

In this paper we use second order information about signals and measurements, together with conjugate gradient recursions, to construct subspaces of increasing dimension, where detection, estimation, and beamforming problems may be framed and solved. The geometry of the expanding subspaces brings insight into the nature of multistage filters.