

Angles of Arrival Estimation with Unitary Partial Propagator

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Abstract : In this paper, we investigated the effect of real valued transformation of the spectral matrix of the received data for Angles Of Arrival estimation problem. Indeed, the Unitary transformation of Partial Propagator (UPP) for narrowband sources is proposed and applied on Uniform Linear Array (ULA). Monte Carlo simulation proved the performance of the UPP spectrum comparatively with: Forward Backward Propagator Method (FBPM), Unitary Propagator Method (UPM), Partial Propagator (PPM) and Cramer Rao Bound (CRB). In the second part, the results demonstrate that when some of the sources are fully correlated and closer than the Rayleigh angular limit resolution of the broadside array, the UPP method outperforms the FBPM in both of spatial resolution and complexity

Keywords : AOA; DOA; Uniform Linear Array; Narrowband; Propagator; Real valued transformation; Subspace; Unitary ; Cramer Rao Bound

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