

The hybrid Cramer-Rao bound of direction finding by a uniform circular array of isotropic sensors that suffer stochastic dislocations

The Journal of the Acoustical Society of America 142, 2554 (2017);

<https://doi.org/10.1121/1.5014336>

doi.org/10.1121/1.5014336

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ABSTRACT

Consider azimuth-elevation direction finding by a uniform circular array of isotropic sensors. In the real world, the sensors may dislocate from their nominal positions. These dislocations could be modeled as random variables having an a priori known distribution. This paper investigates how the dislocations would affect azimuth-elevation direction finding by deriving the corresponding hybrid Cramer-Rao bounds. Maximum a posteriori estimators are derived and Monte Carlo simulations are conducted to validate the derived hybrid Cramer-Rao bounds.