OPTIMIZTION OF THE ANTENNA ARRAY GEOMETRY FOR DOA ESTIMATION BASED ON CRAMER RAO BOUND

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**Abstract:**

Optimization of the antenna array geometry is an important factor in Direction of Arrival (DOA). Usually, this issue is soluted by analytical method. It includes problems such as Ambiguity resolving, Isotropic array, Performance of DOA estimation system, Angle resolution...Follow this framework, the thesis used Cramer Rao Bound (CRB)to consider the “isotropic array” characteristic of some well-known antenna array geometries, namely Uniform Linear Array (ULA) and Uniform Circular Array (UCA). From this consideration can build the best antenna patten for DOA issue. Due to the limitation of time the study only conduct for CRB in general case, that in single Gaussian distribution source case, calculating CRB for ULA and UCA by file.m in Matlab, plot the CRB functions versus some array geometry parameters but is not show the final optimal antenna patten.

***Keywords:*** Direction of Arrival (DOA), Cramer Rao Bound (CRB), Uniform Linear Array (ULA), Uniform Circular Array (UCA).