

High Precision Fast Direction-of-Arrival Estimation Method for Planar Array

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Abstract

The multiple signal classification (MUSIC) method for direction-of-arrival (DOA) estimation is widely applied in practical scenarios. However, the MUSIC method with planar array requires two-dimensional (2D) on-grid spectrum searches, which would lead to the grid mismatch and high computational complexity. Therefore, a high precision fast DOA estimation method for planar array is proposed. In the proposed method, a two-stage grid search approach over the 2D spectrum is firstly applied to obtain a quick coarse estimation of DOA. Then the estimation of higher precision is achieved via a quadratic surface fitting method. Simulation results verified the effectiveness of the proposed method.

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