

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)  
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Author: Dr. jian wang  
China, jianwang@nwpu.edu.cn

Mrs. yinghui song  
China, sophui@163.com

A NEW ALGORITHM FOR THE SELF-CALIBRATION OF THE AMPLITUDE AND PHASE ERROR  
OF THE MULTIPLE BEAM ANTENNA IN THE SATELLITE COMMUNICATION**Abstract**

When we use the multiple beam antenna in the satellite communication to estimate the Direction of Arrival (DOA) by using the multiple signal classification (MUSIC) algorithm, the uncertainty element's amplitude and phase will effect the DOA estimation performance of the beam antenna. So a new universal technique for self-calibration based on the minimize cost function is introduced. By minimize the cost function it can get the array covariance matrix and compensate the array uncertainty without estimation. Therefore, the proposed method is advantage over the source calibration algorithm that resorts to computing the sample minimize cost function. The performance of the proposed method is demonstrated by using the actual parameter of multiple beam antenna, and the computer simulations show that the proposed method provide comparable performance that can not only self-calibrate its sensitivity to the array uncertainty with reduce complexity compute with resource, but also further increase its precision.