A Robust MUSIC Based Scheme for Interference Location in Satellite Systems with Multibeam Antennas

Abstract

In this paper, we investigate methods for interference location in satellite communication system using satellite multi-beam antenna with subspace based schemes. A novel MUSIC based approach is proposed for estimating the direction of arrival of the interfering sources. The proposed method provides super resolution and asymptotic maximum likelihood estimates of the direction of arrivals even at low SNR values. Simulations were performed using typical satellite multi-beam antenna configurations and results show that the proposed scheme can effectively estimates the direction of arrival in the azimuth and elevation spectra. Compared to the support vector regression method, the proposed approach offer improved estimation accuracy at low SNR values.

References

- Hu Bai and Lu Hongtao. Satellite interference locating method based on support vector regression. International Journal of


Index Terms

Computer Science            Applied Sciences

Keywords

Satellite interference location                MUSIC direction estimation                subspace methods    
geostationary orbit