

عنوان مقاله:

A Data Focusing method for Microwave Imaging of Extended Targets

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خلاصه مقاله:

This paper presents a data focusing method (DFM) to image extended targets using the multiple signal classification (MUSIC) algorithm. The restriction on the number of transmitter-receiver antennas in a microwave imaging system deteriorates profiling an extended target that comprises many point scatterers. Under such situation, the subspace-based linear inverse scattering methods, like the MUSIC algorithm, fail to image the extended targets. In proposed method, the DFM divides imaging region into several sections and maps the scattered data to each section by applying a linear transformation. Being weakened clutters from other sections, the resultant focused data contains, mostly, the responses of scatterers inside the desired section. In this way, the number of scatterers is reduced comparing to the number of transmitter-receiver antennas and the requirement for the MUSIC is satisfied. Using experimental data, we show that the DFM in conjunction with the MUSIC is successful in microwave imaging of extended targets.

کلمات کلیدی:

Microwave imaging, MUSIC algorithm, Focusing method, Extended target

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