ASYMPTOTIC STRUCTURE OF TWO-DIMENSIONAL MUSIC-TYPE IMAGING FUNCTIONAL

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ABSTRACT

We identify the structure of well-known non-iterative MUltiple SIgnal Classification (MUSIC) algorithm for localizing electromagnetic inclusions of small radius in two-dimensional homogeneous space. We construct a relationship between MUSIC-type imaging functional and Bessel functions of integer order of the first kind. This is based on the structure of left-singular vectors of collected Multi-Static Response (MSR) matrix whose elements are measured far-field pattern and asymptotic expansion formula of in the existence of small inclusions. Some numerical examples are shown to support constructed structure of imaging functional.

REFERENCES

