

Abstracts

A Space-Based Microwave Radar Concept

D. Chakraborty. "A Space-Based Microwave Radar Concept." 1992 Transactions on Microwave Theory and Techniques 40.6 (Jun. 1992 [T-MTT] (Special Issue on Microwaves in Space)): 1081-1089.

A Space-Based Microwave Radar (SBR) Concept is defined using a tether trans/receive antenna supported between two gravity gradient low earth-orbiting satellites. A cluster of four tether antennas each of 6 km maximum length and 1.5 km separation between tethers constitutes a radar. A system of 8 to 11 such clusters constitutes the overall radar scheme which will cover approximately one third of the earth surface for detecting sea-based targets. Issues identified are the array structure, coherence of tethered arrays, grating lobe energy clamping, clutter effects, communications, system requirements and the overall radar system concept including stability considerations. This paper presents the base-line definition of an alternate space-based radar scheme. A significant amount of R&D efforts will be required to derive practical solutions of the proposed scheme.

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