Abstracts

Scattering by an Arbitrary Array of Parallel Wires

Equations are developed for the scattering pattern of an arbitrary array of parallel wires. The wires are assumed to be infinitely long, perfectly conducting, and very small in diameter in comparison with the wavelength. The incident wave is assumed to be TM with respect to the wire axis, but it may have normal or oblique incidence on the wires. The solution includes the interaction effects among all the wires. The far-field scattering patterns are presented graphically for plane arrays, circular arrays, semicircular arrays, square arrays, and other configurations. If a sufficiently great number of wires is present, it is shown that the scattering pattern approaches that of a solid conducting cylinder of the same cross-section shape as the wire-grid array.

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