Abstracts

Longitudinal Electromagnetic Fields in an Aperiodic Structure

The propagation of the electromagnetic wave in an aperiodic disk-loaded accelerating section has been studied using the field-matching technique. A matrix formalism similar to that of the scattering theory is applied. The method developed allows study of an arbitrary number of irises and radial space harmonics. Reflection and transmission coefficients of the structure, its wave and coupling impedances, beam loading, and other characteristics have been calculated as a function of the wave frequency. The modifications of the reflection coefficient by couplers have also been studied. The results of calculations for the detuned accelerating structure designed as SLAC for the Next Linear Collider, and consisting of over 200 cells, are given as an example.

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