

# Propagation of electromagnetic and space-charge waves in quasiperiodic structures

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An analytic method to calculate the propagation of electromagnetic and space-charge waves in a quasiperiodic disk-loaded waveguide including input and output arms, is presented. The approach relies on Cauchy's residue theorem to formulate the transmission, reflection, or the Green's function of a system composed of radial arms and grooves which are attached to a cylindrical waveguide. The only constraint of this method is that the inner radius has to be constant; all the other parameters of the system can be arbitrarily changed. This method is particularly useful for the analysis of input and output section of a high-power traveling wave structures. © 1995 American Institute of Physics.