Abstracts

BI-RME modeling of 3D waveguide components enhanced by the Ewald technique

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This paper presents the application of the "Boundary Integral-Resonant Mode Expansion" (BI-RME) method in conjunction with the Ewald technique to the modeling of arbitrarily shaped three-dimensional waveguide components. The Ewald transformation enhances the convergence of the Green's functions for a boxed resonator thus making practical the implementation of the BI-RME method in rectangular geometry. The new algorithm becomes particularly efficient if the component shares a significant portion of its boundary with the box. The analysis of a waveguide filter demonstrates the advantage of this approach.

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