Abstracts

Reconstruction of permittivity profiles in cylindrical objects illuminated by higher order modes

An improved and accurate technique for the reconstruction of radially dependent permittivity profiles in cylindrical objects illuminated by higher order TE- and TM- cylindrical modes is presented. The technique is based on a general kind of integral transform of the measured frequency dependent reflection data and the recently suggested renormalization technique to obtain a unique solution of the corresponding inverse problem. A dummy time variable has been introduced to improve the overall reconstruction process. This variable has then been transformed into the spatial one via a simple integration routine. A number of reconstruction examples have been considered and a very good agreement has been found between the original and the reconstructed profiles even for very high values of permittivity.

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