# Abstracts

## Trefftz finite elements for electromagnetics

*Y.O. Shlepnev. "Trefftz finite elements for electromagnetics." 2002 Transactions on Microwave Theory and Techniques 50.5 (May 2002 [T-MTT]): 1328-1339.*

It is shown that the method of minimum autonomous blocks (MAB) of Nikol'skii and Nikol'skaia can be reformulated as the Trefftz finite-element method. Solutions of Maxwell's equations in form of plane waves are used to represent fields inside a finite element. Their projections on a set of basis functions on the surface of the element are used to obtain a descriptor of the element in form of an admittance matrix. It is shown that a point-matching projection procedure gives the frequency-domain transmission-line-matrix formulation and Galerkin-type projection leads to the MAB formulation. Admittance matrix representation of the descriptors of the elements makes it possible to use a finite-element-type global matrix assembling procedure and a sparse matrix solver.

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