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Both theoretical and experimental approaches are welcomed.The journal aims also to promote the cooperation between scientists working on application of electromagnetism internationally and in particular in the Trans Black Sea Region.

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Numerical Analysis of Multilayers - Dielectric - Multilayers Fabry-Perot Interferometer by Using the Method of Single Expression
Hovik V. Baghdasaryan, Tamara M. Knyazyan, Sergei I. Avagyan, Nikolaos K.Uzunoglu 1

For multilayers - dielectric - multilayers (MDM) Fabry - Perot interferometer analysis an advanced exact method is applied . The main feature of the method is that a solution of the wave equation in each layer of a structure is presented in the form of a single expression. The description of the method of a single expression (MSE) is presented. An appropriate electrodynamical problem of plane wave transmission through MDM structure are successfully solved. The electrical field amplitude distribution within and outside of the structure is presented. The field localization at the resonance state is observed.

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V. Vachkov, V. Vasilev, D. Stephanov, B. Kostechelniak, A. Opanovich, M. Tachkevich 13

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A.D. Lazarov 19

One of the most utilised image reconstruction correlational methods in a synthetic aperture radar (SAR) is straight convolution. It is an interesting research problem of applying straight convolution procedure for image reconstruction in an inverse synthetic aperture radar (ISAR). The paper offers solving the ISAR image reconstruction problem by developing signal modelig and straight convolution image retrieving. The discrete mathematical model of a trajectory ISAR signal, reflected by 2-D object is devised. The reference function of the straight convolution procedure is constructed. The expressions determining the range resolution cells transition of the ISAR data and reference function are derived. The validity of the mathematical models and the reference function as well as the image reconstruction straight convolution process is proved by the accomplishment of a numerical experiment.

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Sorina Zahan 33

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Alexander G. Nerukh, Konstantin M. Yemelyanov 51

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Development of a General Hybrid Finite-Difference Time-Domain / Method of Moments (FDTD/MoM) Computational Electromagnetics Technique
Dimitra I. Kaklamani, Codruta Vancea, Florin Vancea and Nikolaos K. Uzunoglu 65

A new hybrid Computational Electromagnetic technique is presented based on combined use of Finite-Difference Time-Domain (FDTD) and Method of Moments (MoM) technique. MoM is employed to determine the current distribution on perfect conductors and to satisfy the exact boundary conditions on the interface of inhomogeneous field penetrable material media by solving a Kirchhoff type integral equation, while FDTD is employed to describe the electric field inside the field penetrable regions. The case of two dimensional analysis is presented, while the suitability of the proposed technique to treat arbitrary structures in terms of their shape and constituents is exhibited.