Abstracts

Reinterpretation of the auxiliary differential equation method for FDTD

Y. Takayama and W. Klaus. "Reinterpretation of the auxiliary differential equation method for FDTD." 2002 Microwave and Wireless Components Letters 12.3 (Mar. 2002 [MWCL]): 102-104.

The auxiliary differential equation method used for treating Lorentz media with the FDTD algorithm is reinterpreted to reduce computer memory requirements while maintaining full time synchronism. This new formulation enables us to save up to 20% of computer memory when compared to the previous approach. The validity of our formulation is proved analytically by comparing the resulting equations with those from the previous method. We also employ this approach for Debye media and show that no disadvantage arises in terms of memory requirement.

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