

Accepted Manuscript

Hybrid Newmark-conformal FDTD modeling of thin spoof plasmonic metamaterials

Kazuhiro Fujita

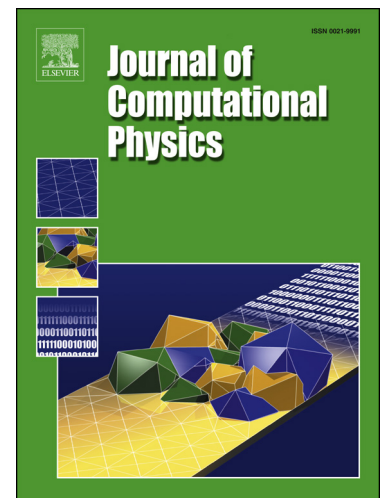
PII: S0021-9991(18)30652-1
DOI: <https://doi.org/10.1016/j.jcp.2018.09.050>
Reference: YJCPH 8297

To appear in: *Journal of Computational Physics*

Received date: 26 June 2018
Revised date: 20 September 2018
Accepted date: 28 September 2018

Please cite this article in press as: K. Fujita, Hybrid Newmark-conformal FDTD modeling of thin spoof plasmonic metamaterials, *J. Comput. Phys.* (2018), <https://doi.org/10.1016/j.jcp.2018.09.050>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlights

- A new efficient and accurate semi-implicit finite-difference time-domain (FDTD) method is proposed for modeling thin plasmonic metamaterials supporting spoof surface plasmons.
- The proposed method is formulated by combining Yu-Mittra's dielectric conformal FDTD technique, the simplified conformal finite integration technique and the Newmark-Beta method.
- The resultant scheme is magnetically implicit and energy conserving, has a relaxed stability condition and allows for accurate modeling of both perfectly electric conducting and dielectric curved surfaces
- A theoretical proof for energy conservation and stability of the scheme with the energy inequality method is presented. A generalization of the scheme is also discussed.
- The scheme is applied to simulate both spoof surface plasmon polaritons and spoof localized surface plasmons.

Download English Version:

<https://daneshyari.com/en/article/11023896>

Download Persian Version:

<https://daneshyari.com/article/11023896>

[Daneshyari.com](https://daneshyari.com)