



Numerical Solution of Initial Boundary Value Problems Involving Maxwell's Equations in Isotropic Media

by

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Abstract – Maxwell's equations are replaced by a set of finite difference equations. It is shown that if one chooses the field points appropriately, the set of finite difference equations is applicable for a boundary condition involving perfectly conducting surfaces. An example is given of the scattering of an electromagnetic pulse by a perfectly conducting cylinder.

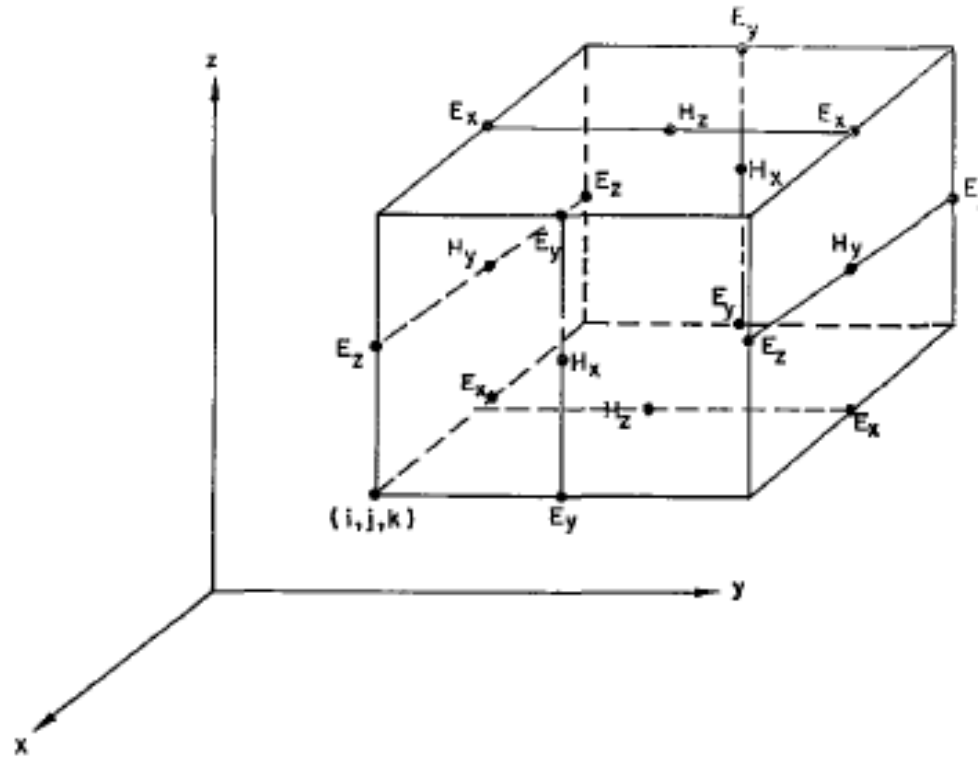


Figure 1: Position of various field components. The E -components are in the middle of the edges and the H -components are in the center of the faces.



- [1] J. Stratton *et al.*, *Electromagnetic Theory*. New York: McGraw-Hill, 1941, p23.
- [2] J. B. Keller and A. Blank, "Diffraction and reflection of pulses by wedges and corners," *Commun. Pure Appl. Math.*, vol. 4, pp. 75-94, June 1951.
- [3] F. G. Friedlander, *Sound Pulses*. New York: Cambridge, 1958.
- [4] J. B. Keller, *Electromagnetic Waves*. Madison, Wis.: Univ. of Wisconsin Press, 1961.