



# 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.

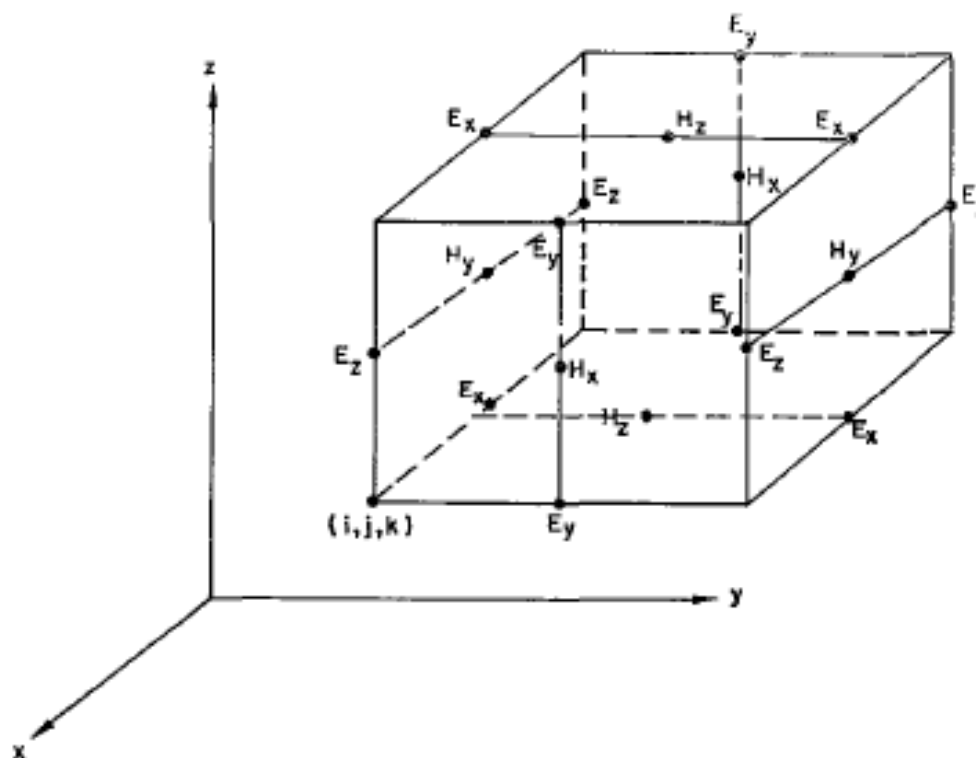


Figure 1: Position of various field components. The  $E$ -components are in the middle of the edges and the  $H$ -components are in the center of the faces.



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- [4] J. B. Keller, *Electromagnetic Waves*. Madison, Wis.: Univ. of Wisconsin Press, 1961.