

## Partial Variational Principle for Electromagnetic Field Problems: Theory and Applications

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A partial variation concept is proposed to clarify and extend the ideas and techniques used in variational electromagnetic (VEM) and variational reaction theory (VRT) of recent papers. Based on this concept, a partial variational principle (PVP) is established for handling a general linear time-harmonic interior and/or exterior electromagnetic field problem. This principle is then applied to attack the problem of waves incident on a dielectric discontinuity in a parallel-plate guide. Also included are numerical results and discussions about such waveguide discontinuity problems for illustrating the use of the proposed technique.

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