Integral equation methods for electromagnetic and elastic waves

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What are Electromagnetic Waves? Read about its formation, graphical representation, mathematical representation, intensity and its speed in free space at BYJU'S. Electromagnetic waves are also known as EM waves that are produced when an electric field comes in contact with the magnetic field. It can also be said that electromagnetic waves are the composition of oscillating electric and magnetic fields. Electromagnetic waves are solutions of Maxwell’s equations, which are the fundamental equations of electrodynamics. How are Electromagnetic waves formed? Generally, an electric field is produced by a charged particle. A force is exerted by this electric field on other charged particles. viii INTEGRAL EQUATIONS FOR ELECTROMAGNETIC AND ELASTIC WAVES. 2.10.1 Lorentz Reciprocity Theorem . . . 2.11 Energy Conservation Theorem—A New Look . . . Integral equation methods have been around for several decades, and their introduction to electromagnetics has been due to the seminal works of Richmond and Harrington. After the initial works of Richmond and Harrington in the 1960s, there was a surge in the interest in this topic in the 1980s (notably the work of Wilton and his coworkers) due to the increased power of computers. Maxwell Equations. Integral form in the absence of magnetic or polarized media: I. Faraday's law of induction II. Ampere's law III. Maxwell's Equations contain the wave equation for electromagnetic waves. One approach to obtaining the wave equation: 1. Take the curl of Faraday's law: 2. Substitute Ampere's law for a charge and current-free region: This is the three-dimensional wave equation in vector form. It looks more familiar when reduced a plane wave with field in the x-direction only: w wang. Also, learning the fundamentals of linear elastic wave theory does not require a quantum leap for electromagnetic practitioners. Integral equation methods have been around for several decades, and their introduction to electromagnetics has been due to the seminal works of Richmond and Harrington in the 1960s. There was a surge in the interest in this topic in the 1980s (notably the work of Wilton and his coworkers) due to increased computing power. The interest in this area was on the wane when it was demonstrated that differential equation methods, with their sparse matrices, can solve many p