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Sommario/riassunto	A unique and comprehensive graduate text and reference on numerical methods for electromagnetic phenomena, from atomistic to continuum scales, in biology, optical-to-micro waves, photonics, nanoelectronics and plasmas. The state-of-the-art numerical methods described include: • Statistical fluctuation formulae for the dielectric constant • Particle-Mesh-Ewald, Fast-Multipole-Method and image-based reaction field method for long-range interactions • High-order singular/hypersingular (Nystrom collocation/Galerkin) boundary and volume integral methods in layered media for Poisson-Boltzmann electrostatics, electromagnetic wave scattering and electron density waves in quantum dots • Absorbing and UPML boundary conditions • High-order hierarchical Nedelec edge elements • High-order discontinuous Galerkin (DG) and Yee finite difference time-domain methods • Finite element and plane wave frequency-domain methods for periodic structures • Generalized DG beam propagation method for optical waveguides • NEGF(Non-equilibrium Green's function) and Wigner kinetic methods for quantum transport • High-order WENO and Godunov and central schemes for hydrodynamic transport • Vlasov-Fokker-Planck and PIC and constrained MHD transport in plasmas