

Invited Paper

Chairs: Roberto D. Graglia, Giuseppe Pelosi

DRAFT

I-0001	Finite Elements in Microwave Engineering: 1968 to 1992 <i>Jon P. Webb</i>
I-0002	Hybrid Finite Element Methods from 1990 to 2005 <i>John L. Volakis</i>

Multi-physics FEM techniques in the simulation of semiconductor devices

Chairs: Giovanni Ghione

A-0012	Finite-element NEGF analysis of optoelectronic devices <i>X. Zhou, F. Bertazzi, M. Goano, G. Ghione, E. Bellotti, F. Dolcini, F. Rossi</i>
A-0023	Numerical FEM techniques for the sensitivity parametric analysis in electro-thermal physics-based semiconductor device models <i>F. Bonani, S. Donati Guerrieri, G. Ghione</i>
A-0058	Parallel Deterministic Solution of the Boltzmann Transport Equation for Semiconductors <i>K. Rupp, A. Morhammer, T. Grasser, A. Inge</i>
A-0075	Electrothermal simulation of wide-area power semiconductor devices during Out-of-SOA events <i>A. Irace</i>
A-0076	A 3D Finite Element Framework for Comprehensive Multi-Physics Simulation of Semiconductor Devices <i>R. Sacco, A.G. Mauri</i>
A-0077	Multi-physics simulations in MEMS <i>A. Corigliano, A. Ghisi, S. Mariani</i>

FEM in Italy A

Chairs: Alessandro Toscano, Antonio Laudani

A-0001	Convergence Analysis of a NURBS-based Boundary Integral Equation Solver <i>U. Iemma, V. Marchese</i>
A-0003	Equivalent Polynomial quadrature for discontinuous fields in the extended finite element method <i>G. Ventura</i>
A-0045	Derivatives computation of FEM solution by using RPQ formulae <i>S. Coco, A. Laudani</i>
A-0046	FEM Computation of Current Density and Oersted Field in real Spin-Torque driven Magnetization devices <i>A. Giordano, G. Finocchio, A. Laudani</i>
A-0047	Numerical simulations of Surface Plasmon Polaritons using FEM <i>G. Lo Sciuto, G. Capizzi</i>
A-0048	FEM NN tool for the simulation of vector-hysteresis in magnetic device <i>E. Cardelli, A. Faba, A. Laudani, G.M. Lozito, F. Riganti Fulginei, A. Salvini</i>

FEM in Italy B

Chairs: Antonio Laudani, Alessandro Toscano

A-0049	Applications of numerical methods in metamaterials at microwave frequencies <i>M.Barbuto, F. Bilotti, A.Monti, D. Ramaccia, A. Tobia, A. Toscano, S. Vellucci</i>
A-0050	FEM simulations of Acoustic Metasurfaces <i>F. Asdrubali, F. Bilotti, P. Gori, C. Guattari, A. Monti, D. Ramaccia, A. Toscano</i>
A-0067	Localized diffusive source estimation via an hybrid finite element/Kalman filtering approach <i>G. Battistelli, L. Chisci, N. Forti, G. Pelosi, S. Selleri</i>
A-0070	Design of Orthomode Transducers using FEM software packages <i>G. Gentili, R. Nesti</i>
A-0073	A FEM aided approach to cost-effective design of direction finding asymmetric arrays <i>L. Scorrano, L. Dinoi</i>

Acceleration/Preconditioning techniques for large problems

Chairs: Amir Boag, Balasubramaniam Shanker

A-0041	Hierarchical Functions for Multiscale Problems <i>R.D. Graglia, A.F. Peterson, P. Petrini, L. Matekovits</i>
A-0064	Fast Scalable Parallel Direct Solutions to Surface Integral Equations in Computational Electromagnetics <i>B.M. Notaro, A.B. Manic, X.S. Li, F.-H. Rouet</i>
A-0021	Multilevel Nonuniform-Grid Algorithm for EM Scattering Problems <i>E.V. Chernokozhin, Y. Brick, G. Lombardi, R. Graglia, A. Boag</i>
A-0014	A combined Mechanical-Electromagnetic Analysis of Dish Reflector Antennas <i>D.J. Ludick, D.B. Davidson, M. Venter, G. Venter</i>
A-0072	Novel Surface-Volume-Surface Electric Field Integral Equation for Solution of Scattering Problems on Penetrable Objects <i>F. Hosseini, A. Menshov, V. Okhmatovski</i>
A-0004	Babichs Expansion and the Fast Huygens Sweeping Method for the Helmholtz Equation at High Frequencies <i>J. Qian, W. Lu, R. Burrridge</i>

Integral equation / BEM methods

Chairs: Balasubramaniam Shanker, Amir Boag

A-0059	The Integral Equation MEI revisited <i>J.M. Rius, A. Heldring, E. Ubeda</i>
A-0054	Isogeometric Method of Moments Analysis for Electric Field Integral Equations using Subdivision Surfaces <i>J. Li, B. Shanker</i>
A-0062	Graph Laplacian Based Algorithms for Stable Current Discretizations on Macro Elements <i>R. Mitharwal, F.P. Andriulli</i>
A-0025	From Surface Equivalence Principle to Modular Domain Decomposition <i>F. Muth, H. Schneider</i>
A-0037	A Novel Mortar Surface Technique for Modeling of Multi-Scale Stratified Composites <i>Z. Peng</i>

Advanced FEM and Hybrid Techniques

Chairs: Branislav Notaros, Juan Zapata

A-0028	Second-order Nedelec Curl-Conforming Prism for Finite Element Computations <i>A. Amor-Martin, L.E. Garcia-Castillo</i>
A-0007	Analysis of 3D components by 2D FEM <i>G. G. Gentili, L. Accatino</i>
A-0015	Exact Discrete Electromagnetism by Sampling and Interpolation <i>E. Scholz, S. Lange, T. Eibert</i>
A-0020	A CAD Method based on Hybrid FEM and Spherical Modes for Direct Domain Decomposition <i>P. Robustillo, J. Rubio, J. Zapata, J.R. Mosig</i>
A-0026	Finite Element 1-D Solutions in the Presence of Moving Media <i>A.. Ilic, S.V. Savic, M.M. Ilic,</i>
A-0027	Nonrigorous Symmetric Second-Order Absorbing Boundary Condition: Accuracy, Convergence and Possible Improvements <i>S.V. Savic, A.. Ilic, B.M. Notaro, M.M. Ilic</i>

Advanced FEM and Hybrid Techniques

Chairs: Juan Zapata, Branislav Notaros

A-0033	Posidonia: A Tool for HPC and Remote Scientific Simulations <i>A. Amor-Martin, I. Martinez-Fernandez, L.E. Garcia-Castillo</i>
A-0061	Evaluation of Galerkin Interactions between Surface or Volumetric Elements <i>J. Rivero, F. Vipiana, D. R. Wilton, W. A. Johnson</i>
A-0069	FEM-BCI: a set of hybrid methods for the computation of electromagnetic fields in open boundaries <i>G. Aiello, S. Alfonzetti, N. Salerno</i>
A-0066	The Efficient Mixed FEM with Mass-Lumping and Impedance Transmission Boundary Condition for Computing Optical Waveguide Modes <i>N. Liu, G. Cai, Q.H. Liu</i>
A-0065	A New 3D DGTD Method Hybridizing the Finite Element and Finite Difference Techniques with Non-Conformal Meshes <i>Q. Sun, Q. Ren, Q. Zhan, Q.H. Liu</i>
A-0052	Multiscale Finite Element Modeling for Composite Material Characterization <i>B.-Y. Wu, X.-Q. Sheng, Y. Hao</i>

Parallel Computation on Multi- and Many-Core Computers

Chairs: Ali E. Yilmaz

A-0055	Parallel Wideband ACE-FMM for Large-Scale Distributed-Memory Clusters <i>S. Hughey, H.M. Aktulga, B. Shanker</i>
A-0060	A Parallel, Distributed-Memory MLFMA for the Stochastic Galerkin Method <i>Z. Zubac, J. Fostier, D. De Zutter, D. Vande Ginste</i>
A-0063	An Empirical Methodology for Judging the Performance of Parallel Algorithms on Heterogeneous Clusters <i>J.W. Massey, A. Menshov, A.E. Yilmaz</i>
A-0056	Linear Complexity Direct Finite Element Solvers for General Electromagnetic Forward Analysis and Inverse Design <i>B. Zhou, D. Jiao</i>
A-0071	Parallel MLFMA Accelerated Higher-Order Solution of Large Scattering Problems via Locally Corrected Nystrom Discretization of CFIE <i>M. Shafieipour, I. Jeffrey, J. Aronsson, V. Okhmatovski</i>
A-0036	High-Performance Surface Integral Equation Solver for Extreme Large Multi-Scale Electromagnetic Problems <i>Z. Peng, B. MacKie-Mason</i>

Optimization Techniques and Parameter Space Sweep

Chairs: Romanus Dyczij-Edlinger

A-0002	Reduced Basis Model Reduction for Time-Harmonic Maxwell's Equations with Stochastic Coefficients <i>M. Hess, P. Benner</i>
A-0022	Adaptive Model-Order Reduction for the Simulation of Devices Fed by Dispersive Waveguides Based on the Finite-Element Scattering Formulation <i>R. Baltes, A. Sommer, O. Farle, R. Dyczij-Edlinger</i>
A-0032	Reduced-Basis Method for Geometric Parameters in Computer-Aided Design of Microwave Filters and Diplexers <i>V. de la Rubia, A. Lamecki, M. Mrozowski</i>
A-0034	Mesh deformation techniques in parametric modeling and numerical optimization of high frequency devices. <i>A. Lamecki, L. Balewski, M. Mrozowski</i>
A-0078	Efficient FEM software package integration with evolutionary algorithms for large electromagnetic problems <i>E. Agastra, A. Lala, B. Kamo, L. Ntibarikure</i>
A-0043	FEM-based optimization of dummy loads for high-power wideband microwave calorimeters <i>V.Yu. Kozhevnikov, A.I. Klimov</i>

Applications

Chairs: TBD

A-0006	Anisotropic Material Modeling in FEKO with Hybrid FEM/MoM <i>E.A. Attardo, M. Bingle, U. Jakobus</i>
A-0024	Design, Finite Element Analysis and Fabrication of a 3D Periodic Structure to Read the Temperature of the Objects in Microwave Cavities <i>A. Bostani</i>
A-0029	Study of the Proximity Effect and the Distribution Parameters of Multi-conductor Transmission Line <i>L. Guizhen, G. Qingxin, Y. Hongcheng, L. Zengrui</i>
A-0042	Finite Element Modelling of Liquid Crystal-Based Microwave Devices <i>F. Anbal Fernandez, R. James, L. Seddon, S.E. Day, D. Mirshekar-Syahkal</i>
A-0016	The Finite Element Method for 2400MHz Cylindrical Waveguide Antenna Modeling <i>E. El kennassi, K. I. Janati, A. Dirhar, L. Bousshine</i>
A-0008	A Proposal of Electromagnetic Field Analysis Method for Airport Surface in VHF Band <i>R. Kato, R. Suga, A. Kezuka, O. Hashimoto</i>

Domain Decomposition and Non-Linear FEM

Chairs: TBD

A-0005	Combined Domain Decomposition and Model Order Reduction to Solve Complex RF Problems Using FEniCS <i>T. Flisgen, Johann Heller, Ursula van Rienen</i>
A-0040	A Spurious-Mode Free Jacobi-Davidson Method Combined with Domain Decomposition for the Modal Analysis of Electromagnetic Structures <i>O. Floch, R. Baltes, A. Sommer, R. DyczijEdlinger</i>
A-0018	Proper Generalized Decomposition method applied to solve 3D Low Frequency Electromagnetic Field Problems <i>T. Henneron, S. Clnet</i>
A-0011	Robust, efficient and accurate computation of nonlinear eigenvalue problems from Maxwell equations <i>M. Eller, S. Reitzinger, S. Schop, S. Zaglmayr</i>
A-0068	Volterra Series for an iterative finite element time domain solution of wave propagation in nonlinear media <i>S. Maddio, G. Pelosi, M. Righini, S. Selleri</i>
A-0009	Coupled Discontinuous Galerkin Time-Domain Simulation of the Nonlinear Electromagnetic-Plasma Interaction <i>S. Yan, J.-M. Jin</i>

FEM Theory

Chairs: TBD

A-0051	Structured meshes using computed basis functions <i>M. Nazari, J.P. Webb</i>
A-0057	On the preconditioning of the differential A-f formulation <i>Y.-L. Li, S. Sun, W. C. Chew, L. J. Jiang</i>
A-0053	Impact of Causality on Computational Techniques <i>T.K. Sarkar, M. Salazar-Palma</i>
A-0074	Accurate and Efficient Nyström Volume Integral Equation Method for the Maxwell equations for Multiple 3-D Scatterers for meta-material applications <i>W. Cai</i>
A-0044	Modeling the ion-exchange process for diffusion waveguides within thin glass sheets <i>T. Khler, D. Zhang, E. Griese</i>
A-0010	Multiphysics Simulation of Integrated Circuits with the Finite Element Method <i>T. Lu, J.-M. Jin</i>