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ACES 2019 Technical Review

Sunday, April 14

02:00PM-05:00PM	Conference Registration	Foyer
04:00PM-07:00PM	ACES Board of Directors Meeting	Metronome

Monday, April 15

07:30AM-05:00PM	Conference Registration	Foyer
08:00AM-12:00PM	Exhibitors Set-up	Ballroom Foyer
01:30PM-05:00PM	Exhibitors	Ballroom Foyer
06:00PM-09:00PM	Welcome Reception	Symphony Ballroom II
08:00AM-08:05AM	Welcome Message <i>John Volakis and Osama Mohammed, Conference General Chairs</i>	Symphony Ballroom I
08:05AM-08:10AM	ACES Business Meeting <i>Abd A. Arkadan, ACES President</i>	Symphony Ballroom I
Session 1 08:10AM-09:00AM	Plenary Talk – 1 “Additively Manufactured Flexible, Wearable, Disposable Antennas and Sensors for Wireless Sensing Applications” <i>Atif Shamim</i>	Symphony Ballroom I
Session 2 09:10AM-10:00AM	Plenary Talk – 2 “The Challenges of 5G Wireless Communication Systems” <i>Mark Newbury</i>	Symphony Ballroom I
10:00AM-10:20AM	Break	

		Symphony Ballroom I
Session 3 10:20AM-12:00PM	Advances in Curved Patch Modeling Session Organizer: Andrew Peterson Session Chairs: Andrew Peterson and Branislav M. Notaroš	
10:20AM-10:40AM	“Effect of Cell Curvature on the Convergence Rates of EFIE Numerical Solutions” Andrew F. Peterson	
10:40AM-11:00AM	“Hybrid Integration Scheme for the Evaluation of Strongly Singular Integral over Curvilinear Triangle Surface” J. Rivero, F. Vipiana, D. R. Wilton, and W. A. Johnson	
11:00AM-11:20AM	“On Higher-order Nyström Discretization of Scalar Potential Integral Equation for Penetrable Scatterers” Rui Chen and Hakan Bagci	
11:20AM-11:40AM	“Evaluation of the Contour Integral on Curved Edges in Time Domain Equivalent Edge Currents” Aslihan Aktepe and H. Arda Ülkü	
11:40AM-12:00PM	“Geometrically Conformal Quadrilateral Surface-Reconstruction for MoM-SIE Simulations” Jake Harmon, Cam Key, and Branislav M. Notaroš	
12:00PM-01:30PM	Lunch	

Concerto Ballroom A	
Session 4 10:20AM-11:40AM	RF Filters and Resonators Session Organizer: Thottam S. Kalkur Session Chair: Thottam S. Kalkur
10:20AM-10:40AM	<u>“Superformula-inspired Split-ring Resonators with Applications to Compact Bandpass Filters”</u> Zephaniah Hill, Jack McShane, Roman Zapata, Khair Al Shamaileh, and Said Abushamleh
10:40AM-11:00AM	<u>“Compact Tri-band Pass Filter using Optimized Psi-shaped Resonators”</u> Shahenda Hatem, Hesham A. Mohamed, Roaa Mubarak, and Korany R. Mahmoud
11:00AM-11:20AM	<u>“A Simple Methodology to Eliminate Noise in the Antennas Dipoles Measurements”</u> Décio Rennó de Faria Mendonça, Kenedy Marconi G. Santos, Renan A. dos Santos, Danilo H. Spadoti
11:20AM-11:40AM	<u>“Dualband Balanced Tunable Bandstop Filter”</u> Dubari Borah and Thottam S. Kalkur
12:00PM-01:30PM	Lunch

Concerto Ballroom B	
Session 5 10:20AM-12:00PM	Efficient Optimization of High Frequency Structures - 1 Session Organizers: Mohamed Bakr and Slawomir Koziel Session Chairs: Mohamed Bakr and Slawomir Koziel
10:20AM-10:40AM	<u>“Design Trade-Offs for Spline-Parameterized Patch Coupler through Multi-Objective Optimization”</u> Slawomir Koziel and Adrian Bekasiewicz
10:40AM-11:00AM	<u>“Linear Adjoint Sensitivity Analysis of the Time-Dependent Schrödinger Equation”</u> Mahmoud M.T. Maghrabi, Mohamed H. Bakr, and Shiva Kumar
11:00AM-11:20AM	<u>“On Reduced-Cost Design Optimization of Antennas Using Trust-Region Gradient Search”</u> Anna Pietrenko-Dabrowska and Slawomir Koziel
11:20AM-11:40AM	<u>“A Compact Coplanar Waveguide Quad-band Wilkinson Power Divider Using Non-Uniform Transmission Lines”</u> Heba H. Jaradat, Nihad I. Dib, and Khair A. Al Shamaileh
11:40AM-12:00PM	<u>“A Dual Band Plasmonic Metasurface Absorber for Energy Harvesting Applications”</u> Ayman Negm, Mohamed Bakr, Matiar Howlader, and Shirook Ali
12:00PM-01:30PM	Lunch

Concerto Ballroom C	
Session 6 10:20AM-12:00PM	Advanced Radar Technologies and Techniques - 1 Session Organizers: Mohamed Abouzahra and Mabel Ramirez Session Chairs: Mohamed Abouzahra and Mabel Ramirez
10:20AM-10:40AM	<u>“Space Fence Radar Overview”</u> Gregory Fonder, Matthew Hughes, Mark Dickson, Melissa Schoenfeld, and Jennifer Gardner
10:40AM-11:00AM	<u>“Radio Astronomy Techniques for Multistatic Radar Imaging and Localization of Space Objects”</u> Robert L. Morrison, Jr. and Eric B. Phelps
11:00AM-11:20AM	<u>“Validation of Wind Turbine Doppler Signatures in a Passive Bistatic Radar with a Point Scatterer Model”</u>

	Martin Ummenhofer
11:20AM-11:40AM	“Overview of Electronic Attacks against Passive Radar” Daniel W. O’Hagan, Stephen Paine, and Christof Schupbach
11:40AM-12:00PM	“CW Radar Operation in the Focused Near-Field” Kristan A. Tuttle and Herbert M. Aumann
12:00PM-01:30PM	Lunch

Symphony Ballroom I	
Session 7 01:40PM-02:40PM	Modeling of Novel Micro/Nano-Scale Electromagnetic Phenomena, and Applications Session Organizers: Pai-Yen Chen and Haiyu Huang Session Chair: Pai-Yen Chen
01:40PM-02:00PM	“A Boundary Element Method (BEM) for Modeling the Nonlocal Hydrodynamic Response in Deep-nm Plasmonic Wire Waveguides” Xuezhi Zheng, Mario Kupresak, Raj Mittra, Victor V. Moshchalkov, and Guy A. E. Vandenbosch
02:00PM-02:20PM	“Terahertz Modeling of 2D Electron Gas Systems using Multiphysics Time-Domain Solvers” Shubhendu Bhardwaj
02:20PM-02:40PM	“FPGA-Based FDTD Accelerators for 2DEG Plasma-Wave Device Modeling at THz” Hasantha Malavipathirana, Arjuna Madanayake, Fernando L. Teixeira, John L. Volakis, and Shubhendu Bhardwaj
03:00PM-03:20PM	Break

Concerto Ballroom A	
Session 8 01:40PM-03:00PM	Student Paper Competition - 1 Session Organizers: Shubhendu Bhardwaj and Wujie Wen Session Chairs: Shubhendu Bhardwaj and Matthew Inman
01:40PM-02:00PM	“On Higher-order Nyström Discretization of Scalar Potential Integral Equation for Penetrable Scatterers” Rui Chen and Hakan Bagci
02:00PM-02:20PM	“Two-Dimensional Electrical Properties Tomography Using a Simplified Contrast-Source Inversion Approach” Patrick Fuchs and Rob Remis
02:20PM-02:40PM	“Platform-Aware In-Situ Antenna and Metamaterial Analysis and Design” Shu Wang, Brian MacKie-Mason, and Zhen Peng
02:40PM-03:00PM	“Quantifying Subgridding Errors when Modeling Multiscale Structures with FDTD” Madison Le, Mohammed Hadi, and Atef Elsherbeni
03:00PM-03:20PM	Break

Concerto Ballroom B	
Session 9 01:40PM-03:00PM	Efficient Optimization of High Frequency Structures - 2 Session Organizers: Mohamed Bakr and Slawomir Koziel Session Chairs: Mohamed Bakr and Slawomir Koziel
01:40PM-02:00PM	“Compact Dual-Band Branch-Line Coupler With Enhanced Bandwidth for WLAN Applications” Adrian Bekasiewicz and Slawomir Koziel
02:00PM-02:20PM	“The Impact of Surface Roughness on Avalanche Frequency” Talal Al-Attar

02:20PM-02:40PM	“Dual-Band High Split Ratio Bagley Power Divider Based on Multi-T-Section Characterization of High Impedance Transmission Lines” Omar Jibreel, Nihad Dib, and Khair Al Shamaileh
02:40PM-03:00PM	“Design Optimization of Dual-Band and Double-Polarization IR Perfect Absorbers Using Adjoint Sensitivities” Ahmed Y. Elsharabasy, Mohamed H. Bakr, and M.Jamal Deen
03:00PM-03:20PM	Break

Concerto Ballroom C	
Session 10 01:40PM-02:20PM	Advanced Radar Technologies and Techniques - 2 Session Organizers: Mohamed Abouzahra and Mabel Ramirez Session Chairs: Mohamed Abouzahra and Mabel Ramirez
01:40PM-02:00PM	“RF Compressed Sensing Radar Based on Digital Beamforming for Localization and IoT Applications” Prateek Nallabolu and Changzhi Li
02:00PM-02:20PM	“The Optimization of Arbitrary-Shape Conformal Array Antenna’s Performance Based on CSHPSO” Zhu Qingchao, Zhang Xiaolin, and Fang Jia
03:00PM-03:20PM	Break

Symphony Ballroom I	
Session 11 03:20PM-05:20PM	Computational Electromagnetics, Advanced Algorithms and Emerging Applications Session Organizers: Zhen Peng and Lijun Jiang Session Chair: Yanli Zhang
03:20PM-03:40PM	“Fast Algorithm of Arbitrary Beam Propagation Based on Adaptive Elliptical Gaussian Beam Decomposition” Dong Xia, Liao Ma, Xiya Shao, and Ming Bai
03:40PM-04:00PM	“Modeling and Experiments of High-Quality Factor Cavity Shielding Effectiveness” Salvatore Campione, Larry K. Warne, Isak C. Reines, Jeffery T. Williams, Roy K. Gutierrez, Rebecca S. Coats, and Lorena I. Basilio
04:00PM-04:20PM	“Electromagnetic Analysis of Multilayer Structures with Arbitrarily Shaped Interfaces” Gérard Granet and Denis Prémel
04:20PM-04:40PM	“A Novel Mid-infrared Metalens using a Hyperbolic Metamaterial” Mohamed Kyamo, Navaneeth Premkumar, Abdelgader Alsalhin, and Brian A. Lail
04:40PM-05:00PM	“Determining the Dispersive Features of Nanophotonic Structures based on Hybrid FEM/TMM Technique” Abdelgader Alsalhin and Brian Lail
05:00PM-05:20PM	“Numerical Simulation and Analyses of SAR Images from Ship Wakes” Min Zhang and Jinxing Li

Concerto Ballroom A	
Session 12 03:20PM-05:20PM	Student Paper Competition - 2 Session Organizers: Shubhendu Bhardwaj and Wujie Wen Session Chairs: Shubhendu Bhardwaj and Matthew Inman
03:20PM-03:40PM	“Radiated EM Flux based Diagnostic Approach for Stator Insulation Failures in Inverter fed Motors” Hassan H. Eldeeb, Alberto Berzoy, and Osama Mohammed
03:40PM-04:00PM	“An Accurate Technique for Modeling Realistic Well-Logging Sensors Inside Complex Media”

	Liseth Saavedra, Guilherme S. Rosa, and José R. Bergmann
04:00PM-04:20PM	“Geometrically Conformal Quadrilateral Surface-Reconstruction for MoM-SIE Simulations” Jake Harmon, Cam Key, and Branislav M. Notaroš
04:20PM-04:40PM	“A Novel Mid-infrared Metalens using a Hyperbolic Metamaterial” Mohamed Kyamo, Navaneeth Premkumar, Abdelgader Alsahin, and Brian A. Lail
04:40PM-05:00PM	“Determining the Dispersive Features of Nanophotonic Structures based on Hybrid FEM/TMM Technique” Abdelgader Alsahin and Brian Lail
05:00PM-05:20PM	“Reconfigurable Metasurfaces for Index Modulation in 5G Wireless Communications” John A. Hodge, Kumar Vijay Mishra, and Amir I. Zaghloul

Concerto Ballroom B	
Session 13 03:20PM-05:20PM	Advanced Time Domain Solvers for Multiphysics Modeling in Photonics Session Organizers: Bill Henshaw and Alexander V. Kildishev Session Chairs: Ludmila Prokopeva and Derek Olson
03:20PM-03:40PM	“FDTD Modelling of Optical Polarisation Rotation in a Charged Quantum Dot - Micropillar System” G. Slavcheva, M. Koleva, and A. Rastelli
03:40PM-04:00PM	“Energy Stable Staggered High Order Finite Differences for Optical Media” Daniel Appelö, Vrushali Bokil, Yingda Cheng, and Fengyan Li
04:00PM-04:20PM	“On the Effect of Dissipation and Nonlocality on Unidirectional and Topological Surface Plasmon-Polaritons” S. Ali Hassani Gangaraj and Francesco Monticone
04:20PM-04:40PM	“Solving Maxwell's Equations with a Generalized Dispersive Material Model on Overset Grids” Jeffrey W. Banks, William D. Henshaw, Alexander V. Kildishev, Gregor Kovačič, Ludmila J. Prokopeva, and Donald W. Schwendeman
04:40PM-05:00PM	“Hermite Methods for Electromagnetic Waves in Dispersive Media” Thomas Hagstrom
05:00PM-05:20PM	“Material Models for Full Wave Nonlinear Optics” Michael Povolotskyi, Shaimaa Azzam, Ludmila J. Prokopeva, Samuel Peana, and Alexander V. Kildishev

Concerto Ballroom C	
Session 14 03:20PM-05:20PM	Advances in Multiscale and Multiphysics Computational Methods Session Organizers: Hakan Bagci, Ozgur Ergul, Huseyin Arda Ulku, and Abdulkadir C. Yucel Session Chairs: Hakan Bagci and Ozgur Ergul
03:20PM-03:40PM	“A Discontinuous Galerkin Framework for Multiphysics Simulation of Photoconductive Devices” Liang Chen and Hakan Bagci
03:40PM-04:00PM	“Computation of Fields from a Magnetic Dipole in a Conductive Medium using the QS-DGTD Method” M. Burak Özakın, Liang Chen, Shehab Ahmed, and Hakan Bagci
04:00PM-04:20PM	“Analysis of Composite Structures Involving Near-Zero-Index Materials” Yeşim Koyaz, Hande İbili, and Özgür Ergül
04:20PM-04:40PM	“Efficient Iterative Solution of Dense and Complex Linear Systems with Multiple Right-hand Sides in Electromagnetic Scattering” Bruno Carpentieri, Özgür Ergül, Barışcan Karaosmanoğlu, Sehar Naveed, and Donglin Sun

04:40PM-05:00PM	<u>“Tensor Decompositions for Reducing the Memory Requirement of Translation Operator Tensors in FMM-FFT Accelerated IE Solvers”</u> Cheng Qian, Zhuotong Chen, and Abdulkadir C. Yucel
05:00PM-05:20PM	<u>“Computational Analysis of Nanoantenna Arrays for Nanoparticle Detection”</u> Göktuğ Işıklar and Özgür Ergül

ACES 2019 Technical Review

Tuesday, April 16

07:30AM-05:00PM	Conference Registration	Foyer
08:30AM-05:00PM	Exhibitors	Ballroom Foyer
Session 15 08:10AM-09:00AM	Plenary Talk – 3	Symphony Ballroom I
	“Electromagnetics Education: State of the Art, Assessment of Challenges, and Moving Forward” <i>Branislav M. Notaroš</i>	
Session 16 09:10AM-10:00AM	Plenary Talk – 4	Symphony Ballroom I
	“Adjoint Sensitivity Analysis and its Low and High frequency Applications” <i>Mohamed H. Bakr</i>	
10:00AM-10:20AM	Break	

Symphony Ballroom I		
Session 17 10:20AM-12:00PM	Advances in Frequency-Domain CEM Techniques and Application - 1 Session Organizer: Branislav M. Notaroš Session Chairs: Branislav M. Notaroš and Shubendu Bhardwaj	
	10:20AM-10:40AM	“ Platform-Aware In-Situ Antenna and Metamaterial Analysis and Design ” Shu Wang, Brian MacKie-Mason, and Zhen Peng
10:40AM-11:00AM	“ Acceleration of Volume-Volume (6-D) Integrals for Numerical Evaluation by Double Application of the Divergence Theorem ” J. Rivero, F. Vipiana, D. R. Wilton, and W. A. Johnson	
11:00AM-11:20AM	“ Overview of the Iterative Solver in HFSS for Analyzing Frequency Domain Electromagnetic Problems ” Ali Aghabarati, Kezhong Zhao, and L. E. Rickard Petersson	
11:20AM-11:40AM	“ Effective Electromagnetic Parameter Extractions for Porous Media Using a Potential-Based Formulation ” Su Yan	
11:40AM-12:00PM	“ 2D Integral Formulation with High Order Impedance Boundary Conditions for Transmission Lines ” Luca Di Rienzo and Nathan Ida	
12:00PM-01:30PM	Lunch	

Session 18 10:20AM-12:00PM	Tutorial – 1	Concerto Ballroom A
	“ Adjoint Sensitivity Analysis of High Frequency Structures and its Applications ” <i>Mohamed H. Bakr</i>	
12:00PM-01:30PM	Lunch	

Concerto Ballroom B		
Session 19 10:20AM-12:00PM	Finite Difference Methods and Other Techniques - 1 Session Organizers: Yasushi Kanai and James Cole Session Chairs: Yasushi Kanai and James Cole	
	10:20AM-10:40AM	“ Axial PML Performance Near the Axis of Rotation in Cylindrical FDTD ” Mohammed F. Hadi and Atef Z. Elsherbeni
10:40AM-11:00AM	“ Efficient RCS Evaluation for the Conventional TF/SF Separation Model in the FDTD Technique ” Tadao Ohtani, Yasushi Kanai, and Nikolaos V. Kantartzis	

11:00AM-11:20AM	“Heating Characteristics of a Newly Developed RF Cavity Resonator for Hyperthermia that Targets Deep-Seated Tumor” Yutaka Tange and Yasushi Kanai
11:20AM-11:40AM	“Microwave Non-Destructive Testing Technique for Defect Detection of Composite Piles via Electromagnetic Waves with FDTD” Ummu Sahin Sener and Sebahattin Eker
11:40AM-12:00PM	“A Numerical Approach of Graphene Non-Linear Electromagnetic Response” Stamatios Amanatiadis, Tadao Ohtani, Yasushi Kanai, and Nikolaos Kantartzis
12:00PM-01:30PM	Lunch

Concerto Ballroom C	
Session 20 10:20AM-11:40AM	Uncertainty Quantification Analysis in Networks, Devices, and Fields Session Organizers: Sourajeet Roy and Ata Zadehgol Session Chairs: Matthew Inman and Haisen Zhao
10:20AM-10:40AM	“On the Validity of Time Domain Methods for Complex Cavities” Michael R. Johnson
10:40AM-11:00AM	“Stochastic LIM for Transient Solution of Electromagnetic and Circuit Problems with Uncertainties” Xu Chen, José E. Schutt-Ainé, and Andreas C. Cangellaris
11:00AM-11:20AM	“A Modified Polynomial Chaos Modeling Approach for Uncertainty Quantification” Majid Ahadi Dolatsara, Ambrish Varma, Kumar Keshavan, and Madhavan Swaminathan
11:20AM-11:40AM	“Hierarchical Polynomial Chaos for Variation Analysis of Silicon Photonics Microresonators” Xinzhe Cao, Sakshi Bhatnagar, Mahdi Nikdast, and Sourajeet Roy
12:00PM-01:30PM	Lunch

Symphony Ballroom I	
Session 21 01:40PM-03:00PM	Advances in Frequency-Domain CEM Techniques and Application - 2 Session Organizer: Branislav M. Notaroš Session Chairs: Branislav M. Notaroš and Shubhendu Bhardwaj
01:40PM-02:00PM	“Comparison of Extruded and Capstone Meshes for Finite Element Analysis” Leo Kempel and B. Shanker
02:00PM-02:20PM	“Adjoint-Based Uncertainty Quantification in Frequency-Domain Double Higher-Order FEM” Jake Harmon, Cam Key, Branislav M. Notaroš, Donald Estep, and Troy Butler
02:20PM-02:40PM	“Numerical Mesh Truncation Boundary Conditions Optimized via Machine Learning” Tayfun Özdemir, Daniel N. Aloï, Kevin Bi, and Robert J. Burkholder
02:40PM-03:00PM	“A New Perspective on an Old Problem: Scattering by a Perfect Electric Conductor” Alex J. Yuffa, Johannes Markkanen, Qiang Sun, Evert Klaseboe, and Derek Y. C. Chan
03:00PM-03:20PM	Break

Concerto Ballroom A	
Session 22 01:40PM-03:00PM	Advances on Time Domain Modeling and Design - 1 Session Organizer: Rodolfo Araneo Session Chair: Rodolfo Araneo
01:40PM-02:00PM	“Powerful TLM Technique for Analyzing Antennas”

	Sebastian Held, Adalbert Beyer, Rüdiger Follmann, Peter Waldow, and Dominique Schreurs
02:00PM-02:20PM	“FDTD Modeling of Lightning Electromagnetic Field Propagation Over Mountainous Terrain” Dongshuai Li, Farhad Rachidi, and Marcos Rubinstein
02:20PM-02:40PM	“Time-Domain Magnetic Shielding of a Thin Conducting Screen Against a Small Loop” R. Araneo, G. Lovat, S. Celozzi, and P. Burghignoli
02:40PM-03:00PM	“Plasmonic Resonances and Light Generation in Nanoparticle Dimers” Viktoria E. Babicheva, John M. Nehls, and Jerome V. Moloney
03:00PM-03:20PM	Break

Concerto Ballroom B	
Session 23 01:40PM-03:00PM	Finite Difference Methods and Other Techniques - 2 Session Organizers: Yasushi Kanai and James Cole Session Chairs: Yasushi Kanai and James Cole
01:40PM-02:00PM	“Point Source Transmitting Power Estimation of Wireless Avionics Intra-Communication Systems Using the Large-Scale FDTD Method” Shunichi Futatsumori, Kazuyuki Morioka, Takashi Hikage, Tetsuya Sekiguchi, Manabu Yamamoto, and Toshio Nojima
02:00PM-02:20PM	“FDTD Simulation of Multilayer-Coated and Rough Surface Metals Using Surface Impedance Method” Yong Wang and Scott Langdon
02:20PM-02:40PM	“Accelerating the FDTD Algorithm on CPUs with MATLAB's Parallel Computing Toolbox” Alec Weiss, Atef Elsherbeni, Veysel Demir, and Mohammed Hadi
02:40PM-03:00PM	“Quantifying Subgridding Errors when Modeling Multiscale Structures with FDTD” Madison Le, Mohammed Hadi, and Atef Elsherbeni
03:00PM-03:20PM	Break

Concerto Ballroom C	
Session 24 01:40PM-03:00PM	Applied EM for Biomedical and IoT Radar Technologies Session Organizers: Changzhi Li and Changzhan Gu Session Chairs: Changzhi Li
01:40PM-02:00PM	“In Vitro Dielectric Properties of Rat Skin Tissue for Microwave Skin Cancer Detection” Cemanur Aydinalp, Sulayman Joof, Tuba Yilmaz, Nural Pastacı Özsoğacı, Fatma Ateş Alkan, and Ibrahim Akduman
02:00PM-02:20PM	“Monitoring of Food Contamination via Microwave Imaging” J. Tobon Vasquez, J. Rivero, R. Scapatucci, L. Farina, L. Crocco, and F. Vipiana
02:20PM-02:40PM	“Low-Profile Textile Antenna with Omni-Directional Radiation for Wearable Applications” Chunxu Mao, Pingjuan L. Werner, and Douglas H. Werner
02:40PM-03:00PM	“Analysis of Freshwater Curved and Flat Spiral Antennas” Ruben A. Llamas, Kumar Vijay Mishra, James J. Niemeier and Anton Kruger
03:00PM-03:20PM	Break

Symphony Ballroom I	
Session 25 03:20PM-04:40PM	Advances in Frequency-Domain CEM Techniques and Application - 3 Session Organizer: Branislav M. Notaroš Session Chairs: Branislav M. Notaroš and Shubhendu Bhardwaj
03:20PM-03:40PM	<u>“3D Diagonalization and Supplementation of Maxwell's Magneto-static Field Equations in Fully Anisotropic and Inhomogeneous Media - Part I: Proof of Existence by Construction”</u> A. R. Baghai-Wadji
03:40PM-04:00PM	<u>“3D Diagonalization and Supplementation of Maxwell's Magneto-static Field Equations in Fully Anisotropic and Inhomogeneous Media - Part II: Relative Proof of Consistency”</u> A. R. Baghai-Wadji
04:00PM-04:20PM	<u>“Data-Enabled Poisson Equation Solver using Multiple Input Artificial Neural Networks (ANNs)”</u> Shubhendu Bhardwaj
04:20PM-04:40PM	<u>“Fast Structure Preserving HSS Matrix Inversion Algorithm in Exact Arithmetic and Its Application to Electromagnetic Analysis”</u> Miaomiao Ma and Dan Jiao

Concerto Ballroom A	
Session 26 03:20PM-04:40PM	Advances on Time Domain Modeling and Design - 2 Session Organizer: Rodolfo Araneo Session Chair: Rodolfo Araneo
03:20PM-03:40PM	<u>“FEM-MTLN Hybridization Technique to Evaluate Electrical Current on Multiconductor Cables inside Enclosures Illuminated by a Plane Wave”</u> Pierre Schickele, Xavier Ferrieres, and Jean-Philippe Parmantier
03:40PM-04:00PM	<u>“Lightning Performance of Overhead Distribution Lines with Underbuilt Ground Wires”</u> R. Araneo, S. Celozzi, J. Brandão Faria, A. Andreotti, and L. Verolino
04:00PM-04:20PM	<u>“Improved Heating Uniformity of a 3-kWatt 2.45GHz Microwave Dryer Using Multiple Multi-Slotted Waveguides”</u> S.-H. Ahn, C.-H. Jeong, D.-G. Seo, and W.-S. Lee
04:20PM-04:40PM	<u>“Time-domain Development of Negative Refraction”</u> Timothy J. Garner

Concerto Ballroom B	
Session 27 03:20PM-05:20PM	Low Frequency Magnetics Session Organizer: Osama Mohammed Session Chairs: Osama Mohammed and Yanli Zhang
03:20PM-03:40PM	<u>“Improved Efficiency and Accuracy Using Duality in Hybrid SIBC-BEM Formulation”</u> Aldo Canova, Fabio Freschi, Luca Giaccone, and Maurizio Repetto
03:40PM-04:00PM	<u>“Finite Element Analysis of Starting Performance of Induction Motors with Non-Skewed Asymmetric Rotor Bars”</u> Haisen Zhao, Chengyang Chu, Yang Zhan, Guorui Xu, and Xiaofang Liu
04:00PM-04:20PM	<u>“Loss and Starting Performance of Inverter-fed Induction Motors Considering Semi-Closed Effect of Closed Slot”</u> Haisen Zhao, Cong Liu, Yang Zhan, and Guorui Xu
04:20PM-04:40PM	<u>“Measurement and Modeling of Magnetostriction in Transformer Core Based on a BPNN Method Assisted with Levenberg-Marquardt Algorithm”</u> Zhen Wang, Yanli Zhang, and Osama A. Mohammed

04:40PM-05:00PM	<u>“Calculation on Magnetostrictive Deformation of Motor Core Under the Non-Sinusoidal Excitation”</u> Litao Jiang, Yanli Zhang, and Osama A. Mohammed
05:00PM-05:20PM	<u>“Radiated EM Flux based Diagnostic Approach for Stator Insulation Failures in Inverter fed Motors”</u> Hassan H. Eldeeb, Alberto Berzoy, and Osama Mohammed

ACES 2019 Technical Review

Wednesday, April 17

07:30AM-05:00PM	Conference Registration	Foyer
08:30AM-04:00PM	Exhibitors	Ballroom Foyer
07:00PM-10:00PM	Awards Banquet	Symphony Ballroom II
Session 28 08:10AM-9:00AM	Plenary Talk – 5	Symphony Ballroom I
	“Arbitrary Manipulation of Electromagnetic Waves Through Engineered Materials” <i>Douglas H. Werner</i>	
Session 29 09:10AM-10:00AM	Plenary Talk – 6	Symphony Ballroom I
	“Antenna Research at the Army Research Lab” <i>Steven Weiss</i>	
10:00AM-10:20AM	Break	

Symphony Ballroom I		
Session 30 10:20AM-12:00PM	Optimization and Inverse Problems in Low Frequency EM Applications - 1 Session Organizer: Alessandro Formisano Session Chair: Alessandro Formisano	
	10:20AM-10:40AM	“ Induction Heating of Thermoplastic Composites in the Presence of a Susceptor ” Ankit Patel, Michel Van-Tooren, Frank D. Thomas, Robert Moore, and Mohammad Ali
10:40AM-11:00AM	“ Two-Dimensional Electrical Properties Tomography Using a Simplified Contrast-Source Inversion Approach ” Patrick Fuchs and Rob Remis	
11:00AM-11:20AM	“ A Comparison of Different Formulations for an Inverse Source Magnetostatic Problem ” Alessandro Formisano	
11:20AM-11:40AM	“ An Accurate Technique for Modeling Realistic Well-Logging Sensors Inside Complex Media ” Liseth Saavedra, Guilherme S. Rosa, and José R. Bergmann	
11:40AM-12:00PM	“ Electromagnetic Induction Sensing for Buried Explosive Hazards Detection ” Fridon Shubitidze, Benjamin E. Barrowes, Micheil Prishvin, and Irma Shamatava	
12:00PM-01:30PM	Lunch	

Concerto Ballroom A		
Session 31 10:20AM-11:40AM	EM Modeling Using FEKO - 1 Session Organizer: C.J. Reddy Session Chair: C.J. Reddy	
	10:20AM-10:40AM	“ Recent Improvements in Feko ” Johann van Tonder, Marianne Bingle, Elia Attardo, Ulrich Jakobus, Marlize Schoeman, and Kitty Longtin
10:40AM-11:00AM	“ Co-Channel Simultaneous Transmit and Receive with 3-Element Array Antenna ” Ehab A. Etellisi, Mohamed A. Elmansouri, and Dejan S. Filipovic	
11:00AM-11:20AM	“ Advanced Computational Methods for Transparency Control of Low Emissivity Windows ”	

	Gopinath Gampala and C. J. Reddy
11:20AM-11:40AM	“A Simple Test for Quickly Measuring Shielding Effectiveness of Connectors Using Isotropic Broadband Electric Field Probe” Kenedy Marconi G. Santos, Marcela Silva Novo, Glauco Fontgalland, Marcelo Bender Perotoni, Décio Renno de Faria Mendonça, and Danilo Brito Almeida
12:00PM-01:30PM	Lunch

Concerto Ballroom B	
Session 32 10:20AM-11:20AM	Modeling and Simulation of Electromagnetic Applications Session Chair: Abdullah Eroglu
10:20AM-10:40AM	“Hybrid-PIC Simulation of Nonlinear Wave-particle Interactions in the Earth’s Radiation Belts” Hoyoung Kim and Vijay Harid
10:40AM-11:00AM	“Comparison of Methods for Dielectric Characterization of Additively Manufactured Materials” Gregory Mitchell, Quang Nguyen, and Theodore Anthony
11:00AM-11:20AM	“Impedance Matching of Layered Structures with Metamaterials” Brinta Chowdhury and Abdullah Eroglu
12:00PM-01:30PM	Lunch

Concerto Ballroom C	
Session 33 10:20AM-12:00PM	Antenna Systems and Applications Session Organizer: Ahmed H. Abdelrahman Session Chair: Ahmed H. Abdelrahman
10:20AM-10:40AM	“EM-Driven Size Reduction of UWB MIMO Antennas with Feed Line Modifications” Muhammad Aziz ul Haq and Slawomir Koziel
10:40AM-11:00AM	“Polarization Transformations Based Metasurfaces for 5G Applications” Shraman Gupta and Abdel Razik Sebak
11:00AM-11:20AM	“An X-band Oblique Polarized Antenna Array” Jia Fang, Mouping Jin, and Feng Yu
11:20AM-11:40AM	“Proximity Effect of UWB U-Slot Patch Antenna on Human Body” Mahrukh Khan, Liaquat Ali, Abdul Hamid Yousuf, and Masud Chowdhury
11:40AM-12:00PM	“Design of a Novel Dual-Band, Electrically Small, Printed Octafilar Antenna” Joseph D. Majkowski
12:00PM-01:30PM	Lunch

Symphony Ballroom I	
Session 34 01:40PM-02:40PM	Optimization and Inverse Problems in Low Frequency EM Applications - 2 Session Organizer: Alessandro Formisano Session Chair: Alessandro Formisano
01:40PM-02:00PM	“A Fast 3D Imaging Method for Subsurface Metal Targets Using Time-Domain Electromagnetic System” Wupeng Xie, Xiaojuan Zhang, Yaixin Zheng, Yaxin Mu, and Han Liu
02:00PM-02:20PM	“Deep Neural Networks Based Surrogate Model for Topology Optimization of Electromagnetic Devices” Mauro Tucci, Sami Barmada, Luca Sani, Dimitri Thomopoulos, and Nunzia Fontana
02:20PM-02:40PM	“Driveability Optimization of HEV Powertrain” N. Al-Aawar and A.A. Arkadan
03:00PM-03:20PM	Break

Concerto Ballroom A	
Session 35 01:40PM-02:40PM	EM Modeling Using FEKO - 2 Session Organizer: C.J. Reddy Session Chair: Ulrich Jakobus
01:40PM-02:00PM	<u>“FEKO™ Analysis of Surface Treatments for Mitigating the EM Coupling between Conformal Antennas”</u> Robert J. Burkholder
02:00PM-02:20PM	<u>“Radiated Fields of Patch Antennas – A Comparison of Simulated and Analytic Results”</u> Steven Weiss
02:20PM-02:40PM	<u>“Single Layer Vivaldi Antenna Feed Analysis”</u> William Coburn
03:00PM-03:20PM	Break

Concerto Ballroom B	
Session 36 01:40PM-03:00PM	Antennas and Arrays Session Chairs: Ahmed H. Abdelrahman and Elias A. Alwan
01:40PM-02:00PM	<u>“Miniaturized Omnidirectional UHF RFID Antennas”</u> Joseph E. Diener and Atef Z. Elsherbeni
02:00PM-02:20PM	<u>“Gain Enhancement of a 94GHz LTCC Integrated Pyramidal Horn Antenna Using High Impedance Periphery”</u> Maxence Carvalho, Abe Akhiyat, Elias A. Alwan, and John L. Volakis
02:20PM-02:40PM	<u>“Suppressing E-Plane Scan Resonance for UWB Millimeter-Wave Differential Phased Array”</u> Alexander D. Johnson, Satheesh Bojja Venkatakrishnan, Elias A. Alwan, and John L. Volakis
02:40PM-03:00PM	<u>“Large Waveguide Slotted Array With Shaped Patterns”</u> Wang Hongjian
03:00PM-03:20PM	Break

Symphony Ballroom I	
Session 37 03:20PM-05:40PM	Wireless Power Transfer and Energy Harvesting: Advances in Modelling and Practice Session Organizers: Nunzia Fontana and Shishir Punjala Session Chairs: Sami Barmada and Nunzia Fontana
03:20PM-03:40PM	<u>“A Multi-Transmitter Configuration for High-Safety Wireless Power Transfer Applications”</u> Danilo Brizi, Nunzia Fontana, Sami Barmada, and Agostino Monorchio
03:40PM-04:00PM	<u>“Modeling and Simulation of Multilayer Rectangular Coils for Wireless Power Transfer Applications”</u> Huseyin U. Aydogmus and Hakan P. Partal
04:00PM-04:20PM	<u>“Design Guidelines for Magnetically Coupled Resonant Coils with Data Transfer Capability”</u> Sami Barmada, Nunzia Fontana, and Mauro Tucci
04:20PM-04:40PM	<u>“Multi Band Antenna System for Energy Harvesters”</u> F. A. Rivera-Abreu, M. Merghani, and A. Eroglu
04:40PM-05:00PM	<u>“Wireless Power Transfer Using Magneto-Electric Dipoles”</u> Abdul-Sattar Kaddour and Stavros Georgakopoulos
05:00PM-05:20PM	<u>“Recent Advances in Wireless Systems for Simultaneous Power and Data Transfer”</u> Mahmoud Sharafi Masouleh, Abdul-Sattar Kaddour, and Stavros Georgakopoulos

05:20PM-05:40PM	“Properties of the Conformal CSCMR System” Stavros V. Georgakopoulos and Constantinos L. Zekios
Session 38 03:20PM-05:20PM	Tutorial – 2
	Concerto Ballroom A “Effective Teaching of Engineering Courses Using Flipped Classrooms” <i>Mohamed H. Bakr</i>
Session 39 03:20PM-05:20PM	Tutorial – 3
	Concerto Ballroom B “AI & FE Based Characterization and Design Optimization of Efficient and Renewable Energy Conversion Systems” <i>Abd A. Arkadan</i>
Concerto Ballroom C	
Session 40 03:20PM-05:40PM	Design and Optimization for Nanophotonics: Multiscale Techniques Session Organizers: Alexander V. Kildishev and Douglas Werner Session Chairs: Douglas Werner, Sawyer Campbell, and Zhaxylyk Kudyshev
03:20PM-03:40PM	“Inverse Design of Three-Dimensional Nanoantennas for Metasurface Applications” Danny Z. Zhu, Eric B. Whiting, Sawyer D. Campbell, Pingjuan L. Werner, and Douglas H. Werner
03:40PM-04:00PM	“High-performance Metasurfaces Synthesized via Multi-objective Optimization” Sawyer D. Campbell, Eric B. Whiting, Douglas H. Werner, and Pingjuan L. Werner
04:00PM-04:20PM	“Multiscale, Multiphysics Modeling of Terahertz Emissions from Field Effect Transistors” Shubhendu Bhardwaj
04:20PM-04:40PM	“Modeling of All-Dielectric Metasurfaces Using Deep Neural Networks” Sensong An, Clayton Fowler, Mikhail Y. Shalaginov, Yifei Zhang, Peter Su, Myungkoo Kang, Bowen Zheng, Hong Tang, Hang Li, Anuradha Murthy Agarwal, Clara Rivero-Baleine, Kathleen A. Richardson, Tian Gu, Juejun Hu, and Hualiang Zhang
04:40PM-05:00PM	“Metasurface Design using Level-Set and Gradient Descent Optimization Techniques” Mahdad Mansouree and Amir Arbabi
05:00PM-05:20PM	“A Method-of-Lines Time Domain Method Solver for Dispersive Bianisotropic Maxwell’s Equations” Jeffrey W. Banks, William D. Henshaw, Alexander V. Kildishev, Gregor Kovačič, Ludmila J. Prokopeva, and Derek Olson
05:20PM-05:40PM	“High-Efficiency Emitter for Thermophotovoltaics: Topology Optimization” Zhaxylyk A. Kudyshev, Alexander V. Kildishev, Vladimir M. Shalaev, and Alexandra Boltasseva

ACES 2019 Technical Review

Thursday, April 18

07:30AM-11:00AM	Conference Registration	Foyer
Symphony Ballroom I		
Session 41 08:00AM-10:00AM	Recent Advancements in the Modeling, Design and Application of Metasurfaces - 1 Session Organizers: Douglas Werner, Ping Werner, and Qiang Ren Session Chairs: Douglas Werner and Ping Werner	
08:00AM-08:20AM	“Phonon-Polariton Resonances in Hexagonal Boron Nitride Transdimensional Lattices” Viktoria E. Babicheva	
08:20AM-08:40AM	“Plasmonic Colors and Memory with AI Metafilms” Maowen Song, Di Wang, Zhaxylyk Kudyshev, Yi Xuan, Honglin Yu, Alexandra Boltasseva, Vladimir M. Shalaev, and Alexander V. Kildishev	
08:40AM-09:00AM	“Digital Metasurfaces Controlled by Light” Wei Xiang Jiang and Xin Ge Zhang	
09:00AM-09:20AM	“Dual-Band Slot Dipole with AMC using Textiles” Fatin Nabilah Gimam, Ping Jack Soh, Azremi Abdullah Al-Hadi, Herwansyah Lago, Sharul Kamal Abdul Rahim, Mohd Faizal Jamlos, Dominique Schreurs, and Adalbert Beyer	
09:20AM-09:40AM	“Discontinuous Galerkin Time Domain Method for Periodic Dispersive Structure Analysis at Oblique Incidence” Huaguang Bao, Sawyer D. Campbell, Pingjuan L. Werner and Douglas H. Werner	
09:40AM-10:00AM	“An Integrated, Broadband Circularly-polarized Millimeter-wave Metasurface-based Transmit-array” Zhi Hao Jiang and Xiao-Wei Zhu	
10:00AM-10:20AM	Break	

Concerto Ballroom A		
Session 42 08:00AM-09:40AM	Physically Reconfigurable Antennas and Arrays: Design, Modeling and Materials - 1 Session Organizer: Stavros Georgakopoulos Session Chair: Stavros Georgakopoulos	
08:00AM-08:20AM	“Reconfigurable Origami Antennas” Stavros V. Georgakopoulos	
08:20AM-08:40AM	“Coupled Structural-Electromagnetic Analysis of Origami-Inspired Adaptive Structures” Deanna Sessions, Gregory Huff, Joshua Ruff, Kazuko Fuchi, Alexander Cook, Andrew Gillman, Alexander Pankonien, and Philip Buskohl	
08:40AM-09:00AM	“Automated CAD and Modeling of Origami Structures for Reconfigurable Antenna Applications” Md Rayhan Khan, Constantinos L. Zekios, Stavros V. Georgakopoulos, and Shubhendu Bhardwaj	
09:00AM-09:20AM	“Origami-Tunable Frequency Selective Surfaces: A Design Optimization Approach”	

	Kazuko Fuchi, Andrew Gillman, Alexander Cook, Alexander Pankonien, and Philip Buskohl
09:20AM-09:40AM	“Design of Graded Dielectric Waveguides with Preferential Band-pass Frequencies” Venkatesh Meenakshisundaram, Daryl Osterloh, Andrius Lietuvninkas, Jeffrey Massman, Jeremy Tumpak, Joshua Deaton, and Philip Buskohl
10:00AM-10:20AM	Break

Session 43 08:00AM-10:00AM	Tutorial – 4	Concerto Ballroom B
	“A Gentle Approach to Quantum Electrodynamics” <i>Alireza Baghai-Wadji</i>	
10:00AM-10:20AM	Break	

Session 44 08:00AM-10:00AM	Tutorial – 5	Concerto Ballroom C
	“Domain Decomposition Methods for Differential and Integral Equations” <i>Zhen Peng</i>	
10:00AM-10:20AM	Break	

		Symphony Ballroom I
Session 45 10:20AM-12:00PM	Recent Advancements in the Modeling, Design and Application of Metasurfaces - 2	
	Session Organizers: Douglas Werner, Ping Werner, and Qiang Ren Session Chairs: Douglas Werner and Ping Werner	
10:20AM-10:40AM	“Active Huygens’ Box: Arbitrary Synthesis of EM Waves in Metallic Cavities” Kayode A. Oyesina, Omar Zohir Aly, Gabriel G. L. Zhou, and Alex M. H. Wong	
10:40AM-11:00AM	“2D Anisotropic Media Based Metasurface Absorbing Boundary Conditions” Shraman Gupta and Abdel Razik Sebak	
11:00AM-11:20AM	“Impedance-Matched High-Index Ceramic Microwave Metamaterials at X-band” Quang Nguyen, Max Burnett, Amir I. Zaghloul, Mario J. Mencagli, and Nader Engheta	
11:20AM-11:40AM	“Reconfigurable Metasurfaces for Index Modulation in 5G Wireless Communications” John A. Hodge, Kumar Vijay Mishra, and Amir I. Zaghloul	
11:40AM-12:00PM	“Generation and Manipulation of OAM Beams in 2D Planar Arrays and Reflectarrays” Shubhendu Bhardwaj	

		Concerto Ballroom A
Session 46 10:20AM-11:20AM	Physically Reconfigurable Antennas and Arrays: Design, Modeling and Materials - 2	
	Session Organizer: Stavros Georgakopoulos Session Chair: Stavros Georgakopoulos	
10:20AM-10:40AM	“An Origami Based Capacity Resilient and Reconfigurable MIMO System” Nicholas E. Russo, Constantinos L. Zekios, and Stavros V. Georgakopoulos	
10:40AM-11:00AM	“A Wideband Circularly Polarized GNSS Antenna for Satellite Platforms” Orcun Kiris, Kagan Topalli, and Lokman Kuzu	
11:00AM-11:20AM	“Fully Inkjet-printed Tunable Flexible Microfluidic Chipless RFID Sensor” Yepu Cui, Wenjing Su, and Manos M. Tentzeris	