PRELIMINARY TECHNICAL PROGRAM
IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization (NEMO) 2024
Montreal, Canada
August 11 – 14, 2024

NOTE: This Technical Program will be complemented by the inclusion of all conference Social Program events later.

MONDAY AUGUST 12

(Room: Mcdonald Engineering Building, McGill University)

Time	Event	
8:00 am	Registration Opens	
8:15 am – 8:30 am	Opening Remarks and Address from the IEEE Microwave Theory and Technology Society (MTT-S) President, Prof. Maurizio Bozzi	
8:30 am – 10:10 am	Session Mo-AM1: *Focused Session: Computational Methods for Metasurface Design and Simulation* Chair: Puyan Mojabi (University of Manitoba, Canada)	
	8:30 am – 8:50 am	Radiation Pattern Tailoring Using Conformal Metasurface Radomes Christopher J. M. Barker (University of Alberta, Canada), Ashwin Iyer (University of Alberta, Canada)
	8:50 am – 9:10 am	Recent Advances in the Modeling of Reconfigurable Intelligent Surfaces: Mutual Coupling Effects and Multipath Propagation Yuanzhi Liu (University of Toronto, Canada), Costas Sarris (University of Toronto, Canada)
	9:10 am – 9:30 am	A Robust Microwave Sensor Featuring a Perfect Metasurface Absorber Nazli Kazemi (Polytechnique Montréal, Canada), Mohammad Abdolrazzaghi (University of Toronto, Canada), Petr Musilek (University of Alberta, Canada), Elham Baladi (Polytechnique Montréal, Canada)
	9:30 am – 9:50 am	Linear to Circular Polarization Converting Beamsteerable Metasurfaces Mahboubeh Taraji (Toronto Metropolitan University, Canada), Marco A. Antoniades (Toronto Metropolitan University, Canada), Elham Baladi (Polytechnique Montréal, Canada)
	9:50 am – 10:10 am	Implicit IE-GSTC Metasurface Solver: Review and Recent Progress Mario Phaneuf (University of Manitoba, Canada), Puyan Mojabi (University of Manitoba, Canada)
10:10 am – 10:30 am	Coffee Break	
10:30 am – 11:50 am	Session Mo-AM2: *Fast Algorithms in Computational Electromagnetics* Chairs: Vladimir Okhmatovski (University of Manitoba, Canada), Abdulkadir C. Yucel (Nanyang Technological University, Singapore), Yang Liu (Lawrence Berkeley National Laboratory, USA)	
	10:30 am – 10:50 am	Faber Polynomial based Local Propagators for Laser Applications Wladimir Plotnikov (TU Dortmund University, Germany), Dirk Schulz (TU Dortmund University, Germany)
	10:50 am – 11:10 am	Preconditioned Parallel Locally Corrected Nyström Discretization of CFIE Accelerated by H-Matrix Omid Babazadeh (University of Manitoba, Canada), Vladimir Okhmatovski (University of Manitoba, Canada), Ian Jeffrey (University of Manitoba, Canada), Constantine Sideris

		(University of Southern California, USA), Emrah Sever (Aselsan Inc., Turkey), Jin Hu (University of Southern California, USA)
	11:10 am – 11:30 am	Discontinuous Galerkin Time Domain Methods in Electromagnetics GPU-Accelerated Numerical Algorithms Olivier Cotte (McGill University, Canada), Dennis D Giannacopoulos (McGill University, Canada)
	11:30 am – 11:50 pm	Antenna-Circuit Co-Simulation via Clustering Model Order Reduction Jacob Martire (Uniersity of Ottawa, Canada), Derek A McNamara (University of Ottawa, Canada), Emad Gad (University of Ottawa, Canada)
11:50 am – 12:00 pm	Discussion Mo-AM Sessions and Conference Announcements	
12:00 pm – 1:00 pm	Lunch	
1:00 pm – 2:00 pm	Keynote: Multiscale and Multiphysics Modeling, Analysis, and Optimization of 3-D Heterogeneously Integrated Systems Dan Jiao (Elmore Family School of Electrical and Computer Engineering, Purdue University, USA)	
2:00 pm – 3:40 pm	Session Mo-PM1: *Focused Session: Commercial EM Simulation Tools* Chair: C. J. Reddy (Altair Engineering, USA)	
	2:00 pm – 2:20 pm	Efficient CAD of Large Rotational Symmetric Antennas with BOR FEM and Spherical Wave Expansion Ralf Beyer (Mician GmbH, Germany), Ralf Ihmels (Mician Inc., Germany)
	2:20 pm – 2:40 pm	Conformal Field Injection for Accurate FDTD Simulation of Off-Grid Planar Transmission Line Structures Andreas Lauer (IMST GmbH, Germany), Thorsten Liebig (IMST GmbH, Germany), David Schäfer (IMST GmbH, Germany), Winfried Simon (IMST GmbH, Germany), Andreas Wien (IMST GmbH, Germany)
	2:40 pm – 3:00 pm	Recent Advances in Altair Feko Shannon Mistry (Altair, USA), C. J. Reddy (Altair, USA)
	3:00 pm – 3:20 pm	Leveraging Cloud Computing & GPU Acceleration for High Fidelity Wireless Channel Modeling in Dynamic Virtual Terrestrial Environments Laila Salman (Ansys Canada Ltd.)
	3:20 pm – 3:40 pm	Recent Advances in Full-Wave Modelling of IC Packaging Jonatan Aronsson (CEMWorks Inc., Canada)
3:40 pm – 4:00 pm	Coffee Break	
4:00 pm – 5:20 pm	Session Mo-PM2: *Optimization and Modeling Methods for Computer-aided Design* Chair: Qi-Jun (QJ) Zhang (Carleton University, Canada)	
	4:00 pm – 4:20 pm	A Review of Space Mapping and AI-Based Surrogate for Microwave Device Optimization Yu Deng (Southern University of Science and Technology, China), Qingsha S. Cheng (Southern University of Science and Technology, China), Yu Kuang (National University of Singapore, Singapore)
	4:20 pm – 4:40 pm	High-order Stable Simulation of Nonlinear Circuits using Modified Inversion of the Laplace Transform Bardia Bandali (University of Ottawa, Canada), Emad Gad (University of Ottawa, Canada), Michel Nakhla (Carleton University, Canada)

	4:40 pm – 5:00 pm	Power-weighted Pretraining-based Feature Extraction for Model Adaptation of RF Power Amplifiers Qing Luo (Southeast University, China), Xiao-Wei Zhu (Southeast University, China)
	5:00 pm – 5:20 pm	Multi-objective Design Optimization of a 22kW Class Inverter with Orthogonal Array Experiment and Multi-island Genetic Algorithm Chang-Yong Song (Mokpo National University, South Korea)
5:20 pm – 5:30 pm	Discussion Mo-PM Sessions and Conference Announcements (Conference Chairs)	

TUESDAY AUGUST 13

(Room: Mcdonald Engineering Building, McGill University)

Time	**Event**	
8:15 am	Registration Opens	
8:30 am – 10:10 am	Session Tu-AM1: *Focused Session: Bridging the Gaps between Electromagnetic Modeling and Material Measurements – Part I* Chairs: Malgorzata Celuch (QWED Sp. z o. o., Poland), Kamel Haddadi (University of Lille, France)	
	8:30 am – 8:50 am	Reduction of Numerical Analysis Complexity of Structures Used for Material Characterization Malgorzata Warecka (Gdansk University of Technology, Poland), Rafal Lech (Gdansk University of Technology, Poland), Piotr Kowalczyk (Gdansk University of Technology, Poland)
	8:50 am – 9:10 am	Estimation of Electric Conductivity of Copper Foils Employing Full Wave Simulation Based on 3D FEM and Shape Deformation Adam Lamecki (EM Invent sp. z o.o., Poland), Lukasz Balewski (EM Invent sp. z o.o., Poland), Michal Mrozowski (EM Invent sp. z.o.o, Poland)
	9:10 am – 9:30 am	Modeling-Based Methodology for Electromagnetic Screening of Copper Foils for High-Frequency Applications Malgorzata Celuch (QWED, Poland), Thomas Devahif (Circuit Foil), Tomasz Nalecz (QWED, Poland), Janusz Rudnicki (QWED, Poland)
	9:30 am – 9:50 am	Development of LRRM and TRL Calibration Kits for On-Wafer Microwave Measurements at the Nanoscale Daouda Seck (LNE), Djamel Allal (LNE), Kamel Haddadi (University of Lille, France)
	9:50 am – 10:10 am	A Comparative Study of Deblurring Methods for Dielectric Resonator Scans of Material Surfaces Justyna I. Koper (QWED Sp. Z o. o., Poland), Małgorzata Celuch (QWED Sp. Z o.o., Poland), Marzena Olszewska-Placha (QWED Sp. z o.o., Poland), Przemysław Korpas (Warsaw University of Technology, Poland)
10:10 am – 10:30 am	Coffee Break	
10:30 am – 11:50 am	Session Tu-AM2: *Focused Session: Bridging the Gaps between Electromagnetic Modeling and Material Measurements – Part II* Chairs: Malgorzata Celuch (QWED Sp. z o. o., Poland), Kamel Haddadi (University of Lille, France)	
	10:30 am – 10:50 am	Comparison of the Transmission/Reflection Methods in Liquid Permittivity Measurements Supported by EM Simulations

		Michał M. Kalisiak (Warsaw University of Technology, Poland), Wojciech Wiatr (Warsaw University of Technology, Poland), Arkadiusz Lewandowski (Warsaw University of Technology, Poland), Łukasz Usydus (Central Office of Measures, Poland)
	10:50 am – 11:10 am	Numerical Electromagnetic Modeling of a BCDR Test Fixture for Out of Plane Permittivity Measurements Lukasz Nowicki (QWED Sp. z o. o., Poland), Malgorzata Celuch (QWED Sp. z o. o., Poland), Marzena Olszewska–Placha (QWED Sp. z o. o., Poland), Wojciech Gwarek (QWED Sp. z o. o., Poland)
	11:10 am – 11:30 am	Multipactor Modeling in 2D for Open Insight into the EM Behavior of Metalic Microwave Components Malgorzata Celuch (QWED, Poland), Thomas Devahif (Circuit Foil), Tomasz Nalecz (QWED, Poland), Janusz Rudnicki (QWED, Poland)
	11:30 am – 11:50 pm	Evaluation of Discrepancies in Theoretical and Experimental RF Energy Harvesting Efficiency from Measured Diode Parameters Xiaoqiang Gu (University of Bristol, UK), Maninder Bir Singh Gulshan (McGill University, Canada); Thomas Micallef (Polytechnique Montréal, Canada), Roni Khazaka (McGill University, Canada), Ke Wu (Polytechnique Montréal, Canada)
11:50 am – 12:00 pm	Discussion Tu-AM Sessions and Conference Announcements (Conference Chairs)	
12:00 pm – 1:00 pm	Lunch	
1:00 pm – 2:00 pm	Keynote: A Journey of Discovery in Numerical Microwave Electromagnetics Jim Rautio (Sonnet Software, USA)	
2:00 pm – 3:40 pm	Session Tu-PM1: *Advancements in Electromagnetic and/or Multiphysics Inverse Problems* Chair: Ian Jeffrey (University of Manitoba, Canada)	
	2:00 pm – 2:20 pm	Feature-based Magnetotelluric Inversion with the Variational Autoencoder Regularization Hongyu Zhou (Tsinghua University, China), Rui Guo (Tsinghua University, China), Maokun Li (Tsinghua University, China), Fan Yang (Tsinghua University, China), Shenheng Xu (Tsinghua University, China)
	2:20 pm – 2:40 pm	Minimizing Transceivers through ML-Driven Time-Domain Inversion Ben J. Martin (University of Manitoba, Canada), Ian Jeffrey (University of Manitoba, Canada), Colin Gilmore (University of Manitoba, Canada)
	2:40 pm – 3:00 pm	Prediction of Electromagnetic Scattering with a Small Dataset Based on Active Learning De-Hua Kong (Peking University, China), Wen-Chi Huang (Peking University, China), Jia-Ning Cao (Peking University, China), Wen-Wei Zhang (Peking University, China), Chao-Fu Wang (National University of Singapore, Singapore); Ming-Yao Xia (Peking University, China)
	3:00 pm – 3:20 pm	A Numerical Approach for Doppler Radars Mohammad Marvasti (Université du Québec en Outaouais, Canada), Halim Boutayeb (Université du Québec en Outaouais, Canada)
	3:20 pm – 3:40 pm	Multiphysics Design & Analysis of Silver-Based Low-Emissivity Coating Technology for Energy Saving Sustainable Windows Applications Laila Salman (Ansys Canada Ltd.)
3:40 pm – 4:00 pm	Coffee Break	
4:00 pm – 5:20 pm	Session Tu-PM2: *Advanced Methods for Antenna Analysis and Design*	

	Chair: Zhizhang (David) Chen (Dalhousie University, Canada)	
	4:00 pm – 4:20 pm	Multiphysics Modeling on Photoconductive Antennas for Terahertz Applications Boxun Yan (University of California, Los Angeles, USA), Pooja Bundel (City University of Hong Kong, China), Chi-Hou Chan (City University of Hong Kong, China), Mau-Chung Frank Chang (University of California, Los Angeles, USA)
	4:20 pm – 4:40 pm	Capacity Based Design of Slot Array Antennas Volodymyr Shyianov (University of Manitoba, Canada), Bamelak H Tadele (University of Manitoba, Canada), Vladimir Okhmatovski (University of Manitoba, Canada), Faouzi Bellili (University of Manitoba, Canada), Amine Mezghani (University of Manitoba, Canada)
	4:40 pm – 5:00 pm	On The Circuit Modelling of Far-field Radiation Zhen-yuan Zhang (McMaster University, Canada), Natalia K. Nikolova (McMaster University, Canada), Yang Jiang (Shenzhen University, China), Ming Yu (Southern University of Science and Technology, China)
	5:00 pm – 5:20 pm	Radar Antennas Employing a Modified Dielectric GRIN Luneburg Lens Mohammad Omid Bagheri (University of Waterloo, Canada), Erik Yann Harmgarth (University of Waterloo, Canada), Henrik Ramberg (Fortify Co.), Erwin Biebl (Technical University of Munich, Germany), George Shaker (University of Waterloo, Canada)
5:20 pm – 5:30 pm	Discussion Mo-PM Sessions and Conference Announcements	

WEDNESDAY AUGUST 14

(Room: Mcdonald Engineering Building, McGill University)

Time	**Event**	
8:15 am	Registration Opens	
8:30 am – 9:20 am	IEEE MTT-S Speaker *Talking about Talking: Making your Verbal Presentations Memorable and Compelling* Erin Kiley (Department of Mathematics, Massachusetts College of Liberal Arts)	
9:20 am – 10:20 am	Keynote: Domain Decomposition Methodology for Solving Maxwell's Equations at Scale Zhen Peng (Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, USA)	
10:20 am – 10:40 am	Coffee Break	
10:40 am – 12:40 pm	Session We-AM: *Advances in the Electromagnetic Modeling of Devices and Systems* Chair: Derek A. McNamara (University of Ottawa, Canada)	
	10:40 am – 11:00 am	On the Solution of the TD-EFIE Using a Problem-Independent Numerical Inverse Laplace Transformation Approach Glenn Iwasa (University of Ottawa, Canada), Emad Gad (University of Ottawa, Canada), Derek A. McNamara (University of Ottawa, Canada)
	11:00 am – 11:20 am	Comprehensive End-to-End Solution Workflow for Additively Manufactured High-Power Light Weight Waveguide Filter Laila Salman (Ansys Canada Ltd.)
	11:20 am – 11:40 am	Structured Inverse Eigenvalue Problems for Bandpass Microwave Filter Design Adam Lamecki (EM Invent sp. z o.o., Poland), Michal Mrozowski (Gdansk University of Technology, Poland), Roberto Gomez-Garcia (University of Alcala, Spain)

	11:40 am – 12:00 pm	Transfer Learning for Accelerating Microwave Filter Design Olufemi Oluyemi (University of Regina, Canada), Paul Laforge (University of Regina, Canada), Abdul Bais (University of Regina, Canada)
	12:00 pm – 12:20 pm	Numerical Solver for Characterization of Semiconductor Devices Mario Kupresak (ETH Zurich, Switzerland), Johannes Hoffmann (The Federal Institute of Metrology (METAS), Switzerland), Jasmin Smajic (ETH Zurich, Switzerland), Juerg Leuthold (ETH Zurich, Switzerland)
	12:20 pm – 12:40 pm	Addressing Electromagnetic Modeling and Simulation Challenges for Silicon Interposers in 2.5D/3D IC Chip Design Laila Salman (Ansys Canada Ltd.)
12:40 pm – 1:40 pm	Lunch	
1:40 pm – 2:10 pm	Student Paper Competition Awards	
2:10 pm – 2:30 pm	Closing Remarks and Announcements: Special Issues, NEMO 2025	