



# 2023 Electromagnetics Annual Portfolio Review

Dr. Arje Nachman | January 10-12, 2023 | Arlington, VA - hybrid

Basic Research Innovation Collaboration Center (BRICC)  
 4100 N Fairfax Drive, Suite 450 | Arlington, VA 22203  
 Agenda Day 1 | Tuesday, January 10, 2023

Time	Title	Speaker
0800-0830	BRICC Elevators Open at 8:00, In-person Check-in / Zoomgov Login	
0830-0900	Beyond Chu's lower bound with dispersion engineering and time modulation	<b>Andrea Alu</b> CUNY
0900-0930	Advances in Bayesian Inference Techniques for SAR Image Recovery	<b>Anne Gelb</b> Dartmouth College
0930-1000	Waveform Inversion with a Data Driven Estimate of the Internal Wave	<b>Liliana Borcea</b> University of Michigan
1000-1030	<b>BREAK</b>	
1030-1100	Electromagnetic Force and Momentum in Classical Macroscopic Dipolar Media	<b>Arthur Yaghjian</b> S4, Inc
1100-1130	Broadband Absorption of Microwaves by Localized Spin Excitations in Random Magnets	<b>Eugene Chudnovsky</b> CUNY Lehman College
1130-1300	<b>LUNCH</b>	
1300-1330	A laser-radiation detection method based on intensity interferometry	<b>Elizabeth Bleszynski</b> Monopole Research
1330-1400	Symmetry aspects of EPD formation in periodic arrays of optical waveguides	<b>Ilya Vitebskiy</b> AFRL/RV
1400-1430	Recurrent Shallow Decoders for Sensing	<b>Nathan Kutz</b> University of Washington
1430-1500	<b>BREAK</b>	
1500-1530	Fast Simulation and Inverse Design of Nanophotonic and Radio-Frequency Devices	<b>Constantine Sideris</b> USC
1530-1600	Sampling via Sampling Set Generating Functions	<b>Stephen Casey</b> American University
1600-1630	Detecting weak physical signals from noise: A machine-learning approach with applications in magnetic navigation	<b>Ying-Cheng Lai</b> Arizona State Univ
1630	<b>ADJOURN FOR THE DAY</b>	



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 4100 N Fairfax Drive, Suite 450 | Arlington, VA 22203  
 Agenda Day 2 | Wednesday, January 11, 2023

Time	Title	Speaker
0800-0830	BRICC Elevators Open at 8:00, In-person Check-in / Zoomgov Login	
0830-0900	Coherence, Turbulence, and OAM	Greg Gbur UNCC
0900-0930	Synthetic Aperture Subsurface Imaging	Arnold Kim UC/Merced
0930-1000	Transionospheric Autofocus for Synthetic Aperture Radar	Semyon Tsynkov NCSU
1000-1030	<b>BREAK</b>	
1030-1100	Interferometric Passive Radar Imaging using Deep Plug-and-Play Priors	Birsen Yazici RPI
1100-1130	Screened WKB (WKB across caustics) and other direct and Iterative Scattering Solvers	Oscar Bruno CalTech
1130-1300	<b>LUNCH</b>	
1300-1330	Random Space-time-coupled Light Beams	Lt Col Milo Hyde AFIT
1330-1400	Source Imaging and the Shower Curtain Effect	Knut Solna UC/Irvine
1400-1430	<b>BREAK</b>	
1430-1500	Vectorial EM Propagation Governed by the 3D Stochastic Maxwell Vector Wave Equation: Reconstruction of EM Fields using Sensors Data, Correlations and Physics Based Machine Learning	Alex Mahalov Arizona State Univ
1500-1530	Distributed SAR without the Start-Stop Approximation	Margaret Cheney Colorado State University
1530-1600	Reduced Order Inversion of Monostatic Data in a Multi-Scattering Environment	Vladimir Druskin WPI
1600-1630	Maximal Invariant Static for Subspace Signal Detection in unknown Gaussian interference given multiple observations	R. S. Raghavan AFRL/RV
1630	<b>ADJOURN FOR THE DAY</b>	



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Agenda Day 3 | Thursday, January 12, 2023**

Time	Title	Speaker
<b>0800-0830</b>	<b>BRICC Elevators Open at 8:00, In-person Check-in / Zoomgov Login</b>	
<b>0830-0900</b>	Spectral Sets of Frequencies Important to Inverse Scattering	<b>Fioralba Cakoni</b> Rutgers Univ
<b>0900-0930</b>	Nonlocal Metasurfaces and Spaceplates	<b>Francesco Monticone</b> Cornell
<b>0930-1000</b>	Identifying Low-Dimensional Structure for Functional Compression	<b>Erin Tripp</b> AFRL/RI
<b>1000-1030</b>	<b>BREAK</b>	
<b>1030-1100</b>	Comparison of Statistics between Wave Propagation Models through Random Media	<b>Austin McDaniel</b> AFRL/RD
<b>1100-1130</b>	Inverse Born Again	<b>John Schotland</b> Yale
<b>1130-1300</b>	<b>LUNCH</b>	
<b>1300-1330</b>	2D and 3D Chiral Interfaces, and Artificial Intelligence for Metasurface Design	<b>Daniel Sievenpiper</b> UCSD
<b>1330-1400</b>	Empirical Wavelet Systems	<b>Jerome Gilles</b> San Diego State University
<b>1400-1430</b>	<b>BREAK</b>	
<b>1430-1500</b>	All Electromagnetic Scatterers are Matrix-valued Oscillators	<b>Owen Miller</b> Yale
<b>1500-1530</b>	Topologically Protected Four-dimensional Optical Singularities	<b>Frederico Capasso</b> Harvard
<b>1530-1600</b>	A Mathematical Engineering Approach to Small Transmitter Design	<b>Richard Albanese</b> ADED LLC
<b>1600</b>	<b>MEETING ADJOURNED</b>	