CURRICULUM VITAE

Branislav M. Notaros
Professor and University Distinguished Teaching Scholar
Director of Electromagnetics Laboratory
Department of Electrical and Computer Engineering
Colorado State University
1373 Campus Delivery, Fort Collins, CO 80523-1373
Phone: (970) 491-3537, Fax: (970) 491-2249
E-mail: notaros@colostate.edu, Web: www.engr.colostate.edu/~notaros

APPOINTMENTS

2016-   Professor and University Distinguished Teaching Scholar, Colorado State University

2012-2016 Professor, Department of Electrical & Computer Engineering, Colorado State University

2006-2012 Associate Professor (with Tenure), Dept.Electrical & Comp. Eng., Colorado State University

2004-2006 Associate Professor (with Tenure), Dept.Elec./Comp.Eng., Univ.of Massachusetts Dartmouth

1999-2004 Assistant Professor, Dept. of Electrical & Computer Eng., Univ. of Massachusetts Dartmouth

1998-1999 Visiting Scholar, Dept. of Electrical & Computer Eng., University of Colorado, Boulder

1996-1999 Assistant Professor, School of Electrical Engineering, University of Belgrade, Yugoslavia

1989-1996 Teaching & Research Assistant (faculty position), School EE, Univ. of Belgrade, Yugoslavia

PROFESSIONAL PREPARATION

1988   Dipl.Ing. (B.S.) in Electrical Engineering, University of Belgrade, Sch. of Elec. Eng., Yugoslavia

1992   M.S. in Electrical Engineering, University of Belgrade, School of Electrical Eng., Yugoslavia

1995   Ph.D. in Electrical Engineering, University of Belgrade, School of Electrical Eng., Yugoslavia

1998-1999   Postdoctoral scholar, Dept. of Electrical & Computer Eng., University of Colorado, Boulder

MAJOR AWARDS AND HONORS

http://www.engr.colostate.edu/~notaros/awards/awards.htm

- **2005 IEEE Microwave Prize** – best-paper (journal paper) award by the *Microwave Theory and Techniques Society* (*MTT-S*) of the *IEEE* (*Institute of Electrical and Electronics Engineers*) – granted for a paper published in the *IEEE Transactions on Microwave Theory and Techniques* in 2003.

- **1999 IEE Marconi Premium** – best-paper (journal paper) award by the *IEE* (*Institution of Electrical Engineers*), London, United Kingdom (IEE-wide award) – granted for a paper published in the *IEE Proceedings on Microwaves, Antennas and Propagation* in 1997/1998.

- **2022 IEEE Antennas and Propagation Edward E. Altshuler Prize Paper Award** – best-paper (journal paper) award by the *IEEE Antennas and Propagation Society (AP-S)* – granted for a paper published in the *IEEE Antennas and Propagation Magazine* in 2021.

- **2015 IEEE Undergraduate Teaching Award**, *IEEE*-level award, July 21, 2015, Vancouver, Canada.

- **IEEE Fellow**, "for contributions to higher order methods in computational electromagnetics," 2016.

- **ACES Fellow**, *Applied Computational Electromagnetics Society*, 2017.

- **University Distinguished Teaching Scholar (UDTS)**, Colorado State University, 2016. (This University Distinguished Faculty title is conferred for the duration of the faculty member's association with the institution; only 12 persons may hold the title at any one time.)

- **2019 ACES Technical Achievement Award**, "For pioneering contributions to higher order elements, basis functions, and solution techniques in computational electromagnetics," *Applied Computational Electromagnetics Society*, April 17, 2019, Miami, Florida.

- **2014 Carnegie Foundation for the Advancement of Teaching Colorado Professor of the Year Award**, *Council for Advancement and Support of Education* and *Carnegie Foundation for the Advancement of Teaching*, November 20, 2014, National Press Club, Washington, D.C.

- **2015 ASEE ECE Distinguished Educator Award**, *American Society for Engineering Education (ASEE)*, June 15, 2015, Seattle, Washington.

- **2012 IEEE Region 5 Outstanding Engineering Educator Award**, *IEEE Region 5*, April 6, 2013.

- **2005 Scholar of the Year Award** – the most prestigious and competitive university-wide award for scholarly accomplishments, University of Massachusetts Dartmouth.

- **2012 Colorado State University System Board of Governors Excellence in Undergraduate Teaching Award** – the only CSU System Board of Governors award, Colorado State University.

- **2014 Provost's N. Preston Davis Award for Instructional Innovation**, Colorado State University.

- **2018 Provost's N. Preston Davis Award for Instructional Innovation**, as a member of the ECE RED (Revolutionizing Engineering Departments) Project Team, Colorado State University.

- **2004 Dean's Recognition Award** – the first ECE recipient in the first year of the newly established College of Engineering award for outstanding accomplishments, UMass Dartmouth.

- **2021 Walter Scott, Jr. College of Engineering Art Corey Outstanding International Contributions Award**, Colorado State University.

- **2010 College of Engineering George T. Abell Outstanding Teaching and Service Faculty Award**, CSU.

- **2009 ECE Excellence in Teaching Award**, presented at COE Engineering Days (E-Days) Award Ceremony, April 17, 2009 (by nominations and votes of ECE students), CSU.

- **2010 ECE Excellence in Teaching Award**, presented at COE Engineering Days (E-Days) Award Ceremony, April 16, 2010 (by nominations and votes of ECE students), CSU.

- **2011 ECE Excellence in Teaching Award**, presented at COE Engineering Days (E-Days) Award Ceremony, April 15, 2011 (by nominations and votes of ECE students), CSU.

- **2014 ECE Excellence in Teaching Award**, presented at COE Engineering Days (E-Days) Award Ceremony, April 25, 2014 (by nominations and votes of ECE students), CSU.

- **1999 URSI Young Scientist Award**, for the *26th URSI* (*International Union of Radio Science*) *General Assembly*, Toronto, Canada, 1999.

- **1992 Belgrade Chamber of Industry and Commerce Award** – best M.S. Thesis annual award, Yugoslavia, 1992.

- Delivered the **faculty charge at the Spring 2011 College of Engineering Commencement**, on May 13, 2011, in Moby Arena, CSU.
  Speech: http://cope.colostate.edu/CCS/comm/Engineering_Spring_2011.wmv

MAJOR EXTERNAL RESEARCH GRANTS

http://www.engr.colostate.edu/~notaros/research/research.htm#External_Grants

Active grant funding in 2017:

- *Total Active as PI*: $1.4M

- *Total Active as Co-PI*: $3.3M

- *Indirect cost generation in the top five in the ECE Department at CSU*. ECE Department is one of the departments with highest external research funding and expenditures at Colorado State University, http://www.engr.colostate.edu/ece/research/research.php.

Active grant funding in 2016:

- *Total Active as PI*: $1,913,604.00

- *Total Active as Co-PI*: $3,231,636.00

(1) Contract "**RF Analysis and Validation Engineering Software (RAVEnS)**," from the *Air Force Research Laboratory (AFRL)*, *Applied Research Associates (ARA)*, PI: Branislav Notaros (single-investigator contract), start date July 1, 2020, end date June 30, 2025, $1,000,000.

(2) Grant "**Novel Integrated Characterization of Microphysical Properties of Ice Particles Using In-Situ Field Measurements and Polarimetric Radar Observations**," from the *National Science Foundation*, *Geosciences Directorate, Atmospheric and Geospace Sciences (AGS) Division*, *Physical and Dynamic Meteorology (PDM) Program*, unsolicited grant, PI: Branislav Notaros, co-PI: V. Bringi, start date October 1, 2020, end date September 30, 2023, $647,003, Award No. AGS-2029806 (Program Director: Dr. Jielun Sun).
Award abstract: https://www.nsf.gov/awardsearch/showAward?AWD_ID=2029806&Hist

(3) Grant "**A Telemedicine Approach for Monitoring Fracture Healing Via Direct Electromagnetic Coupling**," from the *National Institutes of Health (NIH)*, *NIH R21 grant*, PI: Christian Puttlitz, Co-PIs: Kevin Labus and Branislav Notaros, and Subcontract to UC Denver, start date March 1, 2020, end date February 28, 2023, $351,322 (B. Notaros part: $93,835).

(4) Grant "**Direct Electromagnetic Coupling for Diagnostic Prediction of Fracture Healing**," from the *Office of Economic Development and International Trade (OEDIT)*, State of Colorado, PI: Christian Puttlitz, Co-PIs: Kevin Labus, Branislav Notaros, and Jeremiah Easley, start date March 1, 2020, end date February 28, 2021, $170,000.

(5) Grant "**Novel RF Volume Coils for High and Ultra-High Field Magnetic Resonance Imaging Scanners**," from the *National Science Foundation*, *Engineering Directorate, Electrical, Communications and Cyber Systems (ECCS) Division*, *Communications, Circuits, and Sensing Systems (CCSS) Program*, unsolicited grant, PI Branislav Notaros (single-PI grant), start date September 1, 2018, end date August 31, 2023, $370,000, Award No. ECCS-1810492 (Program Director: Dr. Jenshan Lin).
Award abstract: https://www.nsf.gov/awardsearch/showAward?AWD_ID=1810492

(6) Grant "**Development of Uncertainty Quantification and Design Approaches and Solutions**," from the *Air Force Research Laboratory (AFRL)*, *CREATE SENTRi*, *Riverside Research Institute,* PI: Donald Estep (Statistics Department), co-PI: Branislav Notaros (B. Notaros part: 65%), co-PI: Troy Butler (subcontract to University of Colorado Denver), start date September 19, 2016, end date September 18, 2021, $744,882.

(7) Grant "**CPS: Synergy: Collaborative Research: Enabling Smart Underground Mining with an Integrated Context-Aware Wireless Cyber-Physical Framework**," from the *National Science Foundation*, *Engineering Directorate, Electrical, Communications and Cyber Systems (ECCS) Division*, *Cyber-Physical Systems (CPS) Program*, PI: Sudeep Pasricha, co-PI: Branislav Notaros, start date October 1, 2016, end date September 30, 2020, CSU part: $420,500, Award No. ECCS-1646562 (Program Director: Dr. Chengshan Xiao).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=1646562

(8) Grant "**Toward a More Statistically Robust, Generalized Process Evaluation Framework of Bin and Bulk Microphysics in Winter Precipitation Using NASA GV and GPM-DPR Data**," from *NASA (National Aeronautics and Space Administration), Science Mission Directorate, Earth Science, Precipitation Measurement Missions (PMM)*, *PMM Science Team*, PI: Branislav Notaros, co-Is: V. N. Bringi and Andrew Newman [subcontract to National Center for Atmospheric Research (NCAR), Boulder, Colorado], start date March 1, 2016, end date August 31, 2020, $240,000, Award No. NNX16AE43G (Program Director: Dr. Ramesh Kakar).

(9) Grant "**IUSE Revolutionizing Engineering Departments (RED): Revolutionizing Roles to Reimagine Integrated Systems of Engineering Formation (R^2E^2 – Revolutionary Redesign of Engineering Education)**," from *National Science Foundation*, *Directorate of Engineering*, *Division of Engineering Education and Centers (EEC)*, PI: Anthony Maciejewski, ECE Dept. Head; B. Notaros is Senior Personnel on this grant; start date July 1, 2015, end date June 30, 2021, $1,988,663, Award No. EEC 1519438, (Program Director: Dr. Elliot Douglas).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=1519438

(10) Grant "**Advanced Comprehensive Analysis of Rain Drop Shapes, Oscillation Modes, and Fall Velocities Using High-Resolution Surface Disdrometers, Polarimetric Radar, and Numerical Models**," from the *National Science Foundation*, *Geosciences Directorate, Atmospheric and Geospace Sciences (AGS) Division*, *Physical and Dynamic Meteorology (PDM) Program*, unsolicited grant, PI: V. Bringi, co-PI: Branislav Notaros, start date January 1, 2015, end date December 31, 2019, $530,342, Award No. AGS-1431127 (Program Director: Dr. Nicholas Anderson).
Award abstract: http://nsf.gov/awardsearch/showAward?AWD_ID=1431127

(11) Grant "**Accurate Characterization of Winter Precipitation Using Multi-Angle Snowflake Camera, Visual Hull, Advanced Scattering Methods, and Polarimetric Radar**," from the *National Science Foundation*, *Geosciences Directorate, Atmospheric and Geospace Sciences (AGS) Division*, *Physical and Dynamic Meteorology (PDM) Program*, unsolicited grant, PI: Branislav Notaros, co-PI: V. Bringi, start date December 1, 2013, end date November 30, 2018, $607,967, Award No. AGS-1344862 (Program Director: Dr. Nicholas Anderson).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=1344862

(12) Grant "**Treatment Methodologies for Radiofrequency (RF) Injuries,**" subcontract *RF Applicator System Development*, from *Wyle Laboratories, Inc./USAF School of Aerospace Medicine (USAFSAM)/AFOSR*, subcontract PI Branislav Notaros (CSU PI Thomas Johnson, Department of Environmental and Radiological Health Sciences), start date September 4, 2013, end

date December 1, 2014, $71,497 (Wyle Laboratories: Dr. John Ewing, USAFSAM: Dr. Bruce Wright).

(13) Grant "**Suppression of Wind Turbine Clutter from Radar Data,**" from *Matrix Research, Inc./Air Force Office of Scientific Research (AFOSR), Small Business Technology Transfer (STTR) Program – Phase I*, Margaret Cheney, V. Chandraskar, Branislav Notaros, start date October 15, 2013, end date January 14, 2014, $90,000 (Program Director: Dr. Arje Nachman; Matrix Research: Dr. Matthew Ferrara).
Award abstract: http://www.sbir.gov/sbirsearch/detail/409098

(14) Grant "**Collaborative Research: Electromagnetic Field Profile Design for Next-Generation Travelling-Wave MRI**," from the *National Science Foundation*, *Engineering Directorate, Electrical, Communications and Cyber Systems (ECCS) Division*, *Communications, Circuits, and Sensing Systems (CCSS) Program*, unsolicited grant, PI Branislav Notaros, start date July 1, 2013, end date June 30, 2019, CSU part: $248,000, Award No. ECCS-1307863 (Program Director: Dr. Mona Zaghloul).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=1307863

(15) Grant **"Diakoptic Approach to Modeling and Design of Complex Electromagnetic Systems**," from the *National Science Foundation*, *Engineering Directorate, Electrical, Communications and Cyber Systems (ECCS) Division*, *Integrative, Hybrid and Complex Systems (IHCS) Program*, unsolicited grant, PI Branislav Notaros (single-investigator grant), start date May 1, 2010, end date April 30, 2016, $404,000, Award No. ECCS-1002385 (Program Director: Dr. Andreas Weisshaar).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=1002385

(16) Grant "Analysis of Structures for 3-D ALERT," subcontract from the University of Colorado at Boulder, Phase 0 DARPA grant, collaboration of CU Boulder (Prof. Zoya Popovic), CSU, and BAE Systems. CSU budget $20,000, start date February 23, 2007, end date March 31, 2007. CSU PI Branislav Notaros.

(17) Grant "**Efficient Higher Order Techniques for Electromagnetic Modeling and Design of Photonic Crystal Structures**," from the *National Science Foundation*, *Engineering Directorate, Electrical, Communications and Cyber Systems (ECCS) Division*, *Integrative, Hybrid and Complex Systems (IHCS) Program*, unsolicited grant, PI Branislav Notaros (single-investigator grant), start date September 1, 2006, end date August 31, 2011, $410,396, Award No. ECCS-0650719 (Program Director: Dr. Leda Lunardi).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=0650719

(18) Grant "Textile Based Carbon Nanostructured Flexible Antenna," from the *National Textile Center (NTC)*, *Competency: Materials*, B. Notaros is a co-PI, collaborative project with colleagues in the ECE Department and Materials and Textiles Department at UMass Dartmouth and Rennselaer Polytechnic Institute, start date June 1, 2006, end date May 31, 2009, $155,000 per year, Project ID: M06-MD01.

(19) Grant "**Higher-Order Finite Element-Moment Method Modeling Techniques for Conformal Antenna Applications**," from the *National Science Foundation*, *Engineering Directorate*, *Electrical, Communications and Cyber Systems Division*, *Electronics, Photonics, and Device Technologies* (*EPDT*) *Program*, unsolicited grant, PI Branislav Notaros (single-investigator grant), start date September 1, 2003, end date August 31, 2009, $249,417, Award No. ECCS-0647380 (Program Director: Dr. Kawthar A. Zaki).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=0324345

(20) Grant "**Large-Domain Hybrid Moment Method–Physical Optics Techniques for Efficient and Accurate Electromagnetic Modeling of Cars and Aircraft over a Wide Range of Frequencies**,"

from the *National Science Foundation*, *Engineering Directorate*, *Electrical and Communications Systems Division*, *EPDT Program*, unsolicited grant, PI Branislav Notaros (single-investigator grant), start date September 1, 2001, end date August 31, 2005, $192,000, Award No. ECS-0115756 (Program Director: Dr. James W. Mink).
Award abstract: http://www.nsf.gov/awardsearch/showAward?AWD_ID=0115756

(21) NSF Foundation Coalition grant, project "Electromagnetics Concept Inventory" – Branislav Notaros, *National Science Foundation*, *Engineering Directorate*, *Engineering Education and Centers Division*, start date June 1, 2000, end date August 31, 2003, approx. $70,000, Award No. EEC-9802942.

RESEARCH IN THE ELECTROMAGNETICS LABORATORY (DIRECTOR B. NOTAROS)

http://www.engr.colostate.edu/~notaros/research/research.htm#EM_Lab

Research expertise, interests, contributions, initiatives, and future plans of the Electromagnetics Laboratory at Colorado State University, ECE Department, are in the area of electromagnetics, and in its crossings with other areas of science and engineering. Our current research activities span a very broad range of exciting and emerging topics in computational electromagnetics; modeling and numerical methods; antennas; scattering; metamaterials; cyber-physical systems; uncertainty quantification; atmospheric/meteorological electromagnetics; radar meteorology; characterization of snow and rain; surface and radar precipitation measurements; image processing; RF/optical instrumentation development; bioelectromagnetics; RF design for magnetic resonance imaging at high and ultrahigh magnetic fields; direct electromagnetic coupling system for orthopaedic diagnostics; telemedicine system for orthopaedic applications; and electromagnetics education.

Our main contributions to computational electromagnetics (CEM) are in higher order CEM techniques based on the method of moments (MoM), surface integral equation (SIE) approach, volume integral equation (VIE) formulation, finite element method (FEM), ray tracing (RT), physical optics (PO), domain decomposition method (DDM), diakoptics, hybrid CEM methods, adjoint methods, a posteriori error estimation, adaptive mesh refinement, uncertainty quantification, sensitivity analysis, and general surface meshing methods, as applied to modeling and design of antennas, scatterers, and RF/microwave and optical devices and systems.

Some current projects deal with

(a) adaptive mesh refinement and uncertainty quantification for RF Analysis and Validation Engineering Software (RAVEnS);

(b) development of uncertainty quantification and design approaches and solutions for CREATE/ SENTRi;

(c) adjoint based error estimation and adaptive mesh refinement for computational electromagnetics;

(d) refinement-by-superposition approach to adaptive fully anisotropic *hp*-refinement in computational electromagnetics;

(e) general surface meshing in CEM using iterative adaptive refinement;

(f) advanced ray tracing techniques for indoor and outdoor propagation modeling;

(g) accurate characterization of winter precipitation (snow) using multi-angle snowflake camera (MASC), visual hull for reconstruction of 3D hydrometeor shapes, higher order CEM scattering methods, and fully polarimetric data from CSU-CHILL (S-band and X-band) and NCAR S-Pol radars;

(h) integrated design of exposure and excitation of EM fields in the UHF and low microwave frequency range for next-generation traveling-wave magnetic resonance imaging (MRI) at high and ultrahigh magnetic fields ($B_0 \geq 3T$);

(i) direct electromagnetic coupling (DEC) system for human orthopaedic fracture-healing diagnostics;

(j) telemedicine system for orthopaedic patient self-testing and data transmission;

(k) advanced comprehensive analysis of rain drop shapes, oscillation modes, and fall velocities using high-resolution surface disdrometers, polarimetric radar, and numerical models;

(l) fast scalable higher order direct algorithms for large and complex problems in computational sciences and engineering;

(m) hierarchical matrix methods for extreme-scale parallel computation on leading-edge high performance computing (HPC) platforms;

(n) observational analysis, modeling, and development of a statistically robust, generalized process evaluation framework of bin and bulk microphysics in winter precipitation using NASA GV and GPM-DPR data;

(o) modeling and measurements of EM propagation in underground mines and enabling smart underground mining with an integrated context-aware wireless cyber-physical framework;

(p) development of the optical/electronic/laser-sensing/image-processing Snowflake Measurement and Analysis System (SMAS);

(q) RF/microwave applicator system development for biomedical applications;

(r) characterization of rotating wind turbine signatures;

(s) development of antennas for biomedical applications;

(t) revolutionizing engineering departments (RED) – revolutionary redesign of engineering education.

Electromagnetics Laboratory, CSU Engineering Building B110, includes a completely computerized and motorized six-axis 10 MHz–50 GHz antenna and scattering test system (three-axis spherical positioning system and three-axis planar positioning system), completely built by students, in a fully anechoic and shielded chamber and a vector network analyzer system (PNA), with time-domain option, oscilloscope, power generators, pulse generator, and other RF equipment.

MASCRAD SNOW OBSERVATION/ANALYSIS FIELD SITE (PI B. NOTAROS)

http://www.engr.colostate.edu/~notaros/research/research.htm#MASCRAD

As an example of the interdisciplinary activities of the CSU Electromagnetics Laboratory, one of our most exciting current projects is the MASCRAD (MASC + Radar) project, the principal goal of which is to establish a novel approach to characterization of winter precipitation and modeling of associated polarimetric radar observables, with a longer-term goal to significantly improve the radar-based quantitative precipitation estimation in stronger, more hazardous, winter events. Our microphysical characteristics studies of snow are based on a synergistic use of optical instrumentation, image processing, scattering computations, and radar analyses. Overall, there is great need and interest for advances in characterization, classification, and quantification of snow – currently the least understood component of the global water cycle. We have built and established the MASCRAD Field Site for in-situ and remote sensing observations and microphysical characteristics analysis of winter precipitation at the Easton Valley View Airport, south of Greeley, in La Salle, Colorado. The ground instrumentation at the site includes a multi-angle snowflake camera (MASC), 2D-video disdrometer (2DVD), precipitation

occurrence sensor system (POSS), meteorological particle spectrometer (MPS), Pluvio precipitation gauge, VAISALA weather station, and NCAR Mesonet sensors, all installed inside a 2/3-scaled double fence intercomparison reference (DFIR) wind shield. Surface measurements are augmented by the data from radiosondes which are released during intensive operational periods using the collocated NCAR EOL GAUS (GPS Advanced Upper-Air System) Sounding System (in the 2014/2015 winter campaign) and Center for Severe Weather Research (CSWR) Sounding System (in the 2015/2016 winter campaign). The MASCRAD site operates (at ranges of 13 km and 33 km, respectively) under the umbrella of two state-of-the-art polarimetric (dual-polarization) research weather radars, CSU-CHILL Radar (both S-band and X-band) and NCAR SPOL Radar, with high spatial and temporal resolutions and special MASCRAD scan strategies. It is supported by excellent geometrical and image processing and scattering modeling and computing capabilities, and is one of the currently best instrumented and most sophisticated field sites for winter precipitation measurements and analysis in the nation.

As an example of our international collaborations, we are collaborating with Korea Meteorological Administration and Kyungpook National University, Republic of Korea, in preparation, operation, and post-analysis of the International Collaborative Experiments for Pyeongchang 2018 Olympic & Paralympic Winter Games, Korea, ICE-POP 2018, which has been one of the largest snow observation and analysis field campaigns so far, and has involved several cutting-edge radars, aircraft measurements, ships, satellite observations, many advanced ground optical disdrometers, etc.

TEACHING EXPERIENCE

http://www.engr.colostate.edu/~notaros/teaching/teaching.htm

- **33 years of teaching experience as faculty member** (26 years as Assistant, Associate, and Full Professor) in Electrical Engineering at the University of Belgrade, Yugoslavia, University of Colorado at Boulder, University of Massachusetts Dartmouth, and Colorado State University.

- **Courses taught at Colorado State University**:
  - ECE 341, Electromagnetic Fields & Devices I, Fall 2008, Fall 2009, Fall 2012, Fall 2013, Fall 2016, Fall 2017, Fall 2020, and Fall 2021;
  - ECE 342, Electromagnetic Fields & Devices II, Spring 2011, Spring 2012, Spring 2015, Spring 2016, Spring 2019, Spring 2020; and Spring 2023;
  - ECE 641, Electromagnetics, Fall 2007, Spring 2009, Spring 2010, Fall 2012, and Fall 2014;
  - ECE 642, Time Harmonic Electromagnetics, Spring 2008, Spring 2011, and Fall 2013;
  - ECE 444, Antennas and Radiation, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012, Fall 2013, Fall 2014, Spring 2016, Fall 2016, Fall 2017, Fall 2018, Fall 2020, Fall 2021, and Fall 2022;
  - New course: ECE 540 Computational Electromagnetics, Spring 2012, Spring 2016, Spring 2017, Spring 2019, and Fall 2021.
  - New course: ECE 541 Applied Electromagnetics, Fall 2017, Fall 2020, and Fall 2022.
  - Senior design (capstone) projects, ECE 401/402: see the list of projects and academic years/numbers of students within the UNDERGRADUATE RESEARCH/DESIGN STUDENTS section.
  - Independent Study: ENGR 498 Spring 2009, Spring 2010, and Summer 2011; ECE 395 Spring 2008, Spring 2017, and Fall 2017; ECE 695 Fall 2008; MECH 495 Spring 2010; ECE 495 Fall 2010, Fall 2011, Spring 2014, Fall 2014, Spring 2016, Fall 2016, Fall 2017, Spring 2018, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Spring 2022, Fall 2022, and Spring 2023.

- ECE 341 and ECE 342, Electromagnetic Fields & Devices I and II, Honors Sections (for practically all offerings of ECE 341 and ECE 342).

- **At UMass Dartmouth, at the undergraduate level**, was constantly teaching a two-course junior-level sequence on electromagnetic fields and waves required for all electrical engineering majors:

  - ECE 335, Electromagnetic Theory I;
  - ECE 336, Electromagnetic Theory II.

- **At UMass Dartmouth, at the graduate level**, introduced five new courses in applied electromagnetics:

  - ECE 536, Applied Computational Electromagnetics;
  - ECE 537, Antenna Theory;
  - ECE 538, Advanced Antenna Engineering;
  - ECE 539, Electromagnetics of Signal Integrity;
  - ECE 540, Electromagnetics.
  - Also ECE 595, Independent Study (for several advanced graduate topics/courses).

- **Courses taught at the University of Belgrade**, School of Electrical Engineering:

  - EF1OE, Fundamentals of Electrical Engineering [a huge freshmen-level two-semester (full-year) course on basic circuits and fields, with 8 hours of lectures, recitations, and lab per week];
  - TE3E, Electromagnetics (junior-level, two-semester course);
  - RI3E, Electromagnetics for Computer Engineers (junior-level, one-semester course);
  - EG3E, Electromagnetics for Power Engineers (junior-level, one-semester course);
  - TE5PE, Applied Electromagnetics (senior/graduate elective).

- **Undergraduate academic advisor** for a number of Electrical Engineering majors (typically 15 students in every year) at UMass Dartmouth. **Faculty mentor** for four ECE undergraduate students, Spring 2011, CSU.

GRADUATE STUDENT RESEARCH ADVISING/SUPERVISION

http://www.engr.colostate.edu/~notaros/research/research.htm#Students

Ph.D. graduates:

- Dr. Milan Ilic ("Higher Order Hexahedral Finite Elements for Electromagnetic Modeling," 2003);

- Dr. Miroslav Djordjevic ("Numerical Methods for Electromagnetic Modeling of Vehicles over a Wide Range of Frequencies," 2004);

- Dr. Eve Klopf ("Optimal Higher Order Modeling Methodology Based on Method of Moments and Finite Element Method for Electromagnetics," 2011);

- Dr. Elene Chobanyan ("Higher Order Volume/Surface Integral Equation Modeling of Antennas and Scatterers Using Diakoptics and Method of Moments," 2014);

- Dr. Nada Sekeljic ("Transient Analysis of Closed- and Open-Region Electromagnetic Problems Using Higher Order Finite Element Method and Method of Moments in the Time Domain," 2015);

- Dr. Ana Manic ("Fast and Accurate Double-Higher-Order Method of Moments Accelerated by Diakoptic Domain Decomposition and Memory Efficient Parallelization for High Performance Computing Systems," 2015).

- Dr. Sanja Manic ("Electromagnetic Model Subdivision and Iterative Solvers for Surface and Volume Double Higher Order Numerical Methods and Applications," 2019).

- Dr. Cam Key ("Improvements in Computational Electromagnetics Solver Efficiency: Theoretical and Data-Driven Approaches to Accelerate Full-Wave and Ray-Based Methods," 2020).

- Dr. Pranav Athalye ("Designing Novel Radio-Frequency Coils for High Field and Ultra-High Field Magnetic Resonance Imaging," 2021).

- Dr. Jake Harmon ("Accelerated Adaptive Numerical Methods for Computational Electromagnetics: Enhancing Goal-Oriented Approaches to Error Estimation, Refinement, and Uncertainty Quantification," 2022).

- **19 other M.S. and Ph.D. students** in the areas of computational electromagnetic, antennas, and remote sensing (at both Colorado State University and University of Massachusetts Dartmouth).

- **Current Ph.D. and M.S. graduate students** fully supported on NSF, DoD, and other grants: Jake Harmon (Ph.D.), Stephen Kasdorf (Ph.D.), Hein Thant (Ph.D.), Jeremiah Corrado (M.S.).

M.S. Students:

- Andjelija Ilic, Ergun Simsek, Nilanjana De, Enow Tanjong, Erdem Yilmaz, Mubashir Hussain (with Prof. Dayalan Kasilingam), Roochi Chopra (with Prof. Steven Nardone), Carlos Flores, Cameron Kleinkort, Aaron Smull, Nabeel Moin, Ryan McCullough, Marcus Benzel, Adam Hicks, Blake Troksa.

Graduate Committee Assignments at CSU:

- Served on PhD and MS committees of **more than 40 students** (with other colleagues as major advisors).

POSTDOCS AND SENIOR RESEARCH SCIENTISTS

http://www.engr.colostate.edu/~notaros/research/research.htm#Students

- **Five Postdoctoral Fellows and Senior Research Scientists** (at both CSU and UMD).

Senior Research Scientists at CSU:

- Dr. Gwo-Jong Huang, Research Scientist/Scholar II (full-time, since December 2013)

- Dr. Merhala Thurai, Research Scientist/Scholar III (full-time, since January 2015)

Postdoctoral Fellows at CSU:

- Dr. Milan Ilic, Postdoctoral Fellow (Summers 2007–2019)

- Dr. Slobodan Savic, Postdoctoral Fellow (Summer 2017)

- Dr. Miroslav Djordjevic, Postdoctoral Fellow (Summer 2008)

Visiting Scholar Sponsored at CSU:

- Dr. José M. Gil, Visiting Professor of Electrical and Computer Engineering, CSU, Fall 2009 (on leave from Polytechnic University of Madrid, Spain).

UNDERGRADUATE RESEARCH/DESIGN STUDENTS

http://www.engr.colostate.edu/~notaros/research/research.htm#Students

- **22 undergraduate Research Assistants** on "Research Experiences for Undergraduates (REU)" supplemental NSF grants (at both CSU and UMD).

Undergraduate Research/Senior Design Advising at CSU:

- NSF REU - Research Experiences for Undergraduates – students (at CSU):
  - She-ming Allen Chen, Steven Turner, Amy Standley, Joseph Kelly, Eric Smith, Michael Rader, Cameron Kleinkort, Laura Imbler, Aaron Smull, Nabeel Moin, Yoshi Okayasu, Jacob Hartman, Chad Paulson, Mehmed Erkocevic, Cameron Key, Jake Harmon, Jeremiah Corrado, Corban Yeakley.

- Other research undergraduate students supported by NSF grants (at CSU):
- Junjiang Lin, Ce Guo, Andres Solorzano Solis, Bryan Johnson, Aaron Tai, Peter Walsh, Luke Aldana, Corban Yeakley, Ryan Zonnefeld.

- **Senior design (capstone) projects at CSU:**
  - Senior design project "CSU Antenna Test Range", AYs 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14, a total of **25 students** so far. Our projects and teams won the **First Place Award at Senior Design Project Competition at COE Engineering Days (E-Days)**, April 17, 2009, and **Second Place Award at Senior Design Project Competition at COE E-Days**, April 19, 2013.

  - Senior design project "Antenna Design", AY 2011/12, **3 students**.

  - Senior design project "Geometry Processing for Computational Electromagnetics", AY 2012/13, **1 student**.

  - Senior design project "Magnetics: Experimental Investigation of Magnetic Materials and Devices", AY 2014/15, **2 students**.

  - Senior design project "Finite element electromagnetic modeling", AY 2014/15, **1 student**.

  - Senior design project "HexArray: Antenna Array for Wi-Fi Mesh and Robotics", AY 2014/15, **3 students**. Our project and team won the **Third Place Award at Senior Design Project Competition at COE E-Days**, April 17, 2015.

  - Senior design project "Snowflake Sensing System (SSS)", AY 2015/16, **5 students**. Our project and team won the **First Place Award at Senior Design Project Competition at COE E-Days**, April 15, 2016.

  - Senior design project "RF Design for Next-Generation MRI Scanners", AY 2015/16, **3 students**. Our project and team won the **Third Place Award at Senior Design Project Competition at COE E-Days**, April 15, 2016.

  - Senior design project "Ram the Snow Cam: Winter Weather Observation and Processing System", AY 2016/17, **6 students**. Our project and team won the **2017 Best Paper Contest**, IEEE High Plains Section.

- Senior design project "Electromagnetic Measurements in Medical Applications (EMMA)", AY 2016/17, **5 students**. Our project and team won the **Third Place Award at Senior Design Project Competition at COE E-Days**, April 14, 2017.

- Senior design project "Semi-Automated Precipitation Gauge", AY 2016/17, **5 students**.

- Senior design project "Next Generation RF MRI Scanners", AY 2017/18, **3 students;** AY 2019/20, **3 students**; AY 2020/21, **3 students**; AY 2021/22, **3 students**; AY 2022/23, **3 students**.

- Senior design project "3D Snowflake Camera & Snowflake Sensing System", AY 2017/18, **6 students**; AY 2018/19, **6 students**; AY 2019/20, **3 students**; AY 2020/21, **3 students**; AY 2021/22, **6 students**; AY 2022/23, **8 students**.

- Senior design project "CSU Antenna Test Range – ATR", AY 2017/18, **3 students**; AY 2018/19, 4 **students;** AY 2019/20, **3 students**; AY 2020/21, **2 students**; AY 2021/22, **2 students**; AY 2022/23, **5 students**.

- Senior design project "Wireless Signal Characterization of Underground Mines", AY 2017/18, **3 students**. Our project and team won the **Second Place Award at Senior Design Project Competition at WSCOE E-Days**, April 12, 2018; AY 2018/19, **4 students**. Our project and team won the **Second Place Award at Senior Design Project Competition at WSCOE E-Days**, April 19, 2019, as well as the **2019 Best Paper Contest**, IEEE High Plains Section; AY 2019/20, **4 students**; AY 2020/21, **2 students**.

- Senior design project "Telemedicine System for Patient Self-Testing and Data Transmission", AY 2020/21, **3 students**; AY 2021/22, **2 students**; AY 2022/23, **4 students**.

Links to all senior design project websites can be found at
http://www.engr.colostate.edu/~notaros/teaching/teaching.htm#CSUseniorDesign
and
https://www.engr.colostate.edu/ECE401/SeniorDesign.php

ELECTROMAGNETICS AND ENGINEERING EDUCATION RESEARCH

(1) **New Textbook "Electromagnetics" with PEARSON Prentice Hall.** B. Notaros is the author or coauthor of several textbooks in electromagnetics and in fundamentals of electrical engineering (basic circuits and fields). Most importantly, he published a comprehensive textbook "Electromagnetics" (840 pages) for undergraduates with PEARSON Prentice Hall, in June 2010. The new book introduces many unique pedagogical features not present in any of the many existing undergraduate electromagnetics textbooks [there are an extremely large number (~30) of quite different textbooks for undergraduate electromagnetics available and "active" – perhaps more than for any other discipline in science and engineering]. In specific, it provides several nonstandard theoretically and practically important chapters and sections, new style and approaches to presenting challenging topics and abstract EM phenomena, numerous modern supplements, original teaching and learning tools, and some unique recipes and pedagogical guides for electromagnetic field computation and problem solving. It is meant as an "ultimate resource" for undergraduate electromagnetics.

Book website: http://www.pearsonhighered.com/product?ISBN=0132433842

(2) **New Textbook "MATLAB®-Based Electromagnetics" with PEARSON Prentice Hall** (416 pages), published in May 2013. This is a self-contained textbook that can be used either as a supplement to any available electromagnetics text or as an independent resource. Essentially, the book unifies two themes: electromagnetics using MATLAB and MATLAB for electromagnetics; namely, it presents and explains electromagnetics using MATLAB on one side and develops and

discusses MATLAB for electromagnetics on the other. As opposed to other available electromagnetics texts that feature some use of MATLAB, the new book effectively "implements" literally all topics and concepts in undergraduate electromagnetic fields and waves, from the ones in electrostatics to those in antennas, in MATLAB. This is by far the most complete and ambitious attempt to use MATLAB in undergraduate (and overall) electromagnetics education.

Book website: http://www.pearsonhighered.com/product?ISBN=0132857944

(3) **New Textbook "Conceptual Electromagnetics" with CRC Press, Taylor and Francis, LLC** (568 pages), published in July 2017. This is a standalone textbook on Conceptual Electromagnetics that presents and explains the entire EM solely using conceptual questions interwoven with the theoretical narrative and basic equations. It combines fundamental theory and a unique and comprehensive collection of as many as 888 conceptual questions and problems in EM. Conceptual questions and problems of this scope and intent are completely new in EM area, and in practically all ECE areas. Also, this is one of the most complete and ambitious attempts to use them in science and engineering education overall. This book resonates very well with modern learner-centered pedagogies and practices that have recently gained a lot of attention by educators in science and engineering, and are paving their way as a preferred mode, or a major component, of class delivery and instruction.

https://www.crcpress.com/Conceptual-Electromagnetics/Notaros/p/book/9781498770668

(4) **Conceptual Questions in Electromagnetics,** 160 pages, an e-supplement to the new textbook "Electromagnetics" published by PEARSON Prentice Hall. This collection provides 500 Conceptual Questions – these are multiple-choice questions that focus on the core concepts of the material, requiring conceptual reasoning and understanding rather than calculations. Pedagogically, they are an invaluable resource. They can be given for homework and on exams, and are also ideal for interactive in-class questions, explorations, and discussions (usually referred to as active teaching and learning), for student-to-student interaction and students teaching one another (so-called peer instruction, initiated by Eric Mazur in introductory physics), and for team work and exchange of ideas (collaborative teaching/learning). In addition, conceptual questions are perfectly suited for class assessments, as partial and final assessment instruments for individual topics at different points in the course and for the entire class.

http://www.pearsonhighered.com/notaros/

(5) **Computer Exercises in Electromagnetics Using MATLAB,** 350 pages, an e-book (separate ISBN), supplement to the new textbook "Electromagnetics" published by PEARSON Prentice Hall. There are a total of 478 MATLAB exercises, to supplement problems and conceptual questions. The Exercises include 135 tutorials with detailed completely worked out solutions merged with listings of MATLAB codes (m files), 58 movies developed and played in MATLAB, 156 figures generated in MATLAB, 16 graphical user interfaces (GUIs) built in MATLAB, etc. Assignments of computer exercises in parallel with traditional problems can help students develop a stronger intuition and a deeper understanding of electromagnetics and find it more attractive and likable. Moreover, this approach, requiring MATLAB programming, actively challenges and involves the student, providing additional benefit as compared to a passive computer demonstration.

http://www.pearsonhighered.com/notaros/

(6) **Electromagnetics Concept Inventory (EMCI)**, an assessment tool for measuring students' understanding of fundamental concepts in electromagnetics. This work was supported by the *Engineering Education Program* of the *National Science Foundation*, through the NSF Foundation Coalition grant. The EMCI is especially important in light of the new accreditation standards in engineering – *ABET 2000 Criteria* (the key word in these criteria is 'assessment'). (A copy of the EMCI can be obtained upon request, with proper identification, at notaros@colostate.edu).

(7) **Assessment Methodologies for Engineering Education** – participated in several national meetings and multi-university research studies devoted to conceptual assessment instruments and other assessment techniques, as well as curricular reforms, in engineering education. Participated in organization and delivery of panel sessions on the tools for assessing conceptual understanding in engineering sciences at the *ASEE/IEEE Frontiers in Education Conferences* and the Concept Inventory Developers Meetings, gave talks and has papers on concept inventory assessment instruments for electromagnetics education.

Also, participated (by invitation) in *2014 Reinvention Center National Conference*, November 14-15, 2014, Arlington, Virginia. The Reinvention Center's mission is "Advancing Undergraduate Education in America's Research Universities."

(8) **"Creativity Thread Champion" for the NSF Revolutionizing Engineering Departments (RED) Project.** B. Notaros is one of the principal contributors to the five-year NSF Revolutionizing Engineering Departments (RED) Project in the ECE Department at CSU (PI: Anthony Maciejewski, ECE Dept. Head). As one of the only six engineering and computer science departments in the first cohort of NSF RED awardees, we are implementing changes that reimagine the roles of the faculty, moving away from teaching courses in isolation to an integrated, collaborative structure. Key faculty leaders are assigned as "Thread Champions" to interweave Foundations, Creativity, and Professional Formation threads throughout the program, while working with fellow faculty to continue fostering deep knowledge of the discipline and with "Integration Specialists" to synthesize content and illustrate how fundamental concepts are interrelated. These efforts span the entire undergraduate experience, with special attention to the critical technical core of the junior year. Prof. Notaros is the "Creativity Thread Champion" for the RED Project. He also is a leader in developing and implementing electromagnetics learning studio modules (LSMs) and in knowledge integration (KI) of EM LSM concepts with those from signals/systems and electronics, as an essential part of the RED revolution in the ECE Department. After the scalability has been investigated and enhanced, we anticipate that this project and its outcomes will potentially have a transformative impact on the ECE and engineering education globally.

LEADERSHIP IN PROFESSIONAL SOCIETIES

http://www.engr.colostate.edu/~notaros/Service/service.htm#Societies

- President Elect of the *IEEE Antennas and Propagation Society* (2023).

- President of the *Applied Computational Electromagnetics Society (ACES)* (2020–).

- Chair of the *USNC-URSI Commission B* (*Fields and Waves*; largest URSI commission), *US National Committee*, *International Union of Radio Science* (2021–).

- Chair of the *Meetings Committee* of the *IEEE Antennas and Propagation Society* (the role of Vice President of Conferences in other IEEE societies) (2021–2022).

- Chair of the *Joint Meetings Committee* between the *IEEE Antennas and Propagation Society* and the *US National Committee* of the *International Union of Radio Science* (2021–2022).

- Member of the *IEEE Antennas and Propagation Society Administrative Committee* (2021–).

- Member of the *Strategic Planning Committee* of the *IEEE Antennas and Propagation Society* (2021–).

- Member of the *Constitution and Bylaws Committee* of the *IEEE Antennas and Propagation Society* (2023–).

- Member of the *Member and Geographic Activities Committee* of the *IEEE Antennas and Propagation Society* (2021–2022).

- Vice President of the *Applied Computational Electromagnetics Society (ACES)* (2019–2020).

- Vice-Chair of the *USNC-URSI Commission B*, *US National Committee*, *International Union of Radio Science* (2018–2020).

- Member of the *Board of Directors* of the *Applied Computational Electromagnetics Society (ACES)* (2016–2019).

- Chair of the *Technical Committee* for the *USNC-URSI Commission B*, *US National Committee*, *International Union of Radio Science* (2015–2017).

- *Applied Computational Electromagnetics Society (ACES)* Secretary (2017–2019).

- Member of the *Scientific Committee of International Workshops on Finite Elements for Microwave Engineering – FEM* (2012–).

- Member of the *IEEE Antennas and Propagation Society Education Committee*, 2010–2018.

- Originator (with Prof. Atef Elsherbeni) of *CO-EM Group* (of professors and researchers in Colorado working in Electromagnetics area), group meets quarterly, 2016–.

- Fellow of the *IEEE* (*Institute of Electrical and Electronics Engineers*), "for contributions to higher order methods in computational electromagnetics."

- Fellow of *ACES*, *Applied Computational Electromagnetics Society*.

- URSI Senior Member (Senior Member of "International URSI"), *International Union of Radio Science*.

- Member (Fellow) of the *IEEE Antennas and Propagation Society*, *IEEE Microwave Theory and Techniques Society*, *IEEE Education Society*, and *IEEE Geoscience and Remote Sensing Society*.

- Member of the *USNC-URSI Commissions B (Fields and Waves)*, *F (Wave Propagation and Remote Sensing)*, and *K (Electromagnetics in Biology and Medicine)*, *US National Committee*, *International Union of Radio Science*.

- Member of the *Applied Computational Electromagnetics Society* (*ACES*).

- Member of the *American Society for Engineering Education* (*ASEE*).

- Member of the *American Geophysical Union* (*AGU*).

- Member of the *American Meteorological Society* (*AMS*).

- Fellow of *The Electromagnetics Academy*.

SERVICE AS EDITOR, TPC MEMBER, ETC.

http://www.engr.colostate.edu/~notaros/Service/service.htm#Editor

- Track Editor (serves as Editor in Chief for a track of papers) for the *IEEE Transactions on Antennas and Propagation* (2021–).

- Associate Editor for the *IEEE Transactions on Antennas and Propagation* (2017–2020).

- Guest Editor for the *Special issue "Frontiers in Computational Electromagnetics"* of the *IEEE Transactions on Antennas and Propagation* (Guest Editors: Branislav M. Notaros, Colorado State University, USA, Francesco P. Andriulli, Politecnico di Torino, Italy, and Hakan Bagci, King Abdullah University of Science and Technology, Saudi Arabia), 2022.
  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9653185

- Guest Editor of the *Special Issue on Finite Elements for Microwave Engineering*, *Electromagnetics* (double special issue), Vol. 34, Issue 3-4, April 2014.

- Guest Editor in Chief of the *Special Issue on Advanced Computational Electromagnetic Methodologies and Techniques* ("*ACES2018 Denver – Methods*"), *ACES Journal*, Vol. 33, No. 10, October 2018, and Vol. 34, No. 2, February 2019.

- Guest Editor in Chief of the *Special Issue on New Designs of Antennas and RF, Microwave, and Wireless Structures and Systems* ("*ACES2018 Denver – Designs*"), *ACES Journal*, Vol. 33, No. 10, October 2018, and Vol. 34, No. 2, February 2019.

- Guest Editor in Chief of the *Special Issue on Cutting-Edge Modeling and Applications of Electromagnetic Devices and Fields* ("*ACES2018 Denver – Applications*"), *ACES Journal*, Vol. 33, No. 10, October 2018, and Vol. 34, No. 2, February 2019.

- Founding Editor of *"Electromagnetics, Wireless, Radar, and Microwaves Series"*, book series, *CRC Press, Taylor & Francis Group, LLC*.

- Series Associate Editor of the *SciTech/IET-ACES Book Series on Computational Electromagnetics and Engineering (CEME)*.

- Technical Program Committee member for *2023 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, July 23–28, 2023, Portland, Oregon.

- Technical Program Committee member for *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, July 10-15, 2022, Denver, Colorado.

- Technical Program Committee member for *2021 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, December 4–10, 2021, Singapore.

- Technical Program Committee member for *2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, July 5–10, 2020, Montreal, Canada.

- Technical Program Committee member for *2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, July 7–12, 2019, Atlanta, Georgia.

- Technical Program Committee member for *2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, July 8–13, 2018, Boston, Massachusetts.

- Technical Program Committee member for *2017 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, July 9–15, 2017, San Diego, California.

- Technical Program Committee member for *2016 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, June 26 – July 1, 2016, Fajardo, Puerto Rico.

- Technical Program Committee member for *2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting*, July 19–25, 2015, Vancouver, BC, Canada.

- Served as a reviewer of journal papers on more than 200 occasions within last several years.

- Regularly serves as reviewer for the *IEEE Transactions on Antennas and Propagation* and for the *IEEE Transactions on Microwave Theory and Techniques*, and frequently for the *IEEE Antennas and Wireless Propagation Letters*.

- Periodically serves as reviewer for *Nature*, *APS Magazine*, *ACES Journal*, *Journal of Applied Meteorology and Climatology*, *Journal of Computational Physics*, *JOSA A*, *JOSA B*, *IEEE Microwave and Wireless Components Letters*, *Journal of Quantitative Spectroscopy and Radiative Transfer*, *International Journal of RF and Microwave Computer-Aided Engineering*, *IET Microwaves, Antennas & Propagation*, *International Journal for Numerical Methods in Engineering*, *International Journal of Engineering Analysis with Boundary Elements*, *IEEE Transactions on Wireless Communications*, *IEEE Sensors Journal*, *International Journal of Numerical Modeling*, etc.

- Reviewer for many conferences, book series, monographs, textbooks, etc.

- Serves as reviewer of applications for *IEEE Antennas and Propagation Society* Pre-Doctoral and Doctoral Research Awards, Student Paper Awards, Student Design Competitions, etc.

- Member of Award Committees for *2015 ACES Computational Electromagnetics Award*, *2015 ACES Early Career Award*, and *2015 ACES Technical Achievement Award*, *Applied Computational Electromagnetics Society (ACES)*.

- Frequently serves as reviewer and panelist for the National Science Foundation, *Engineering Directorate*, *Electrical, Communications and Cyber Systems* (*ECCS*) *Division*, and also *NSF Office of International Science and Engineering*.

- Proposal reviews for other institutions and agencies.

GENERAL CHAIR OF CONFERENCES

http://www.engr.colostate.edu/~notaros/Service/service.htm#Confchair

(1) General Chair of the *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting – APS/URSI 2022*, July 10-15, 2022, Denver, Colorado.
https://www.2022apsursi.org/

Chair's Report (with event photos) on APS-URSI 2022 Denver Conference:
https://2022apsursi.org/Files/Chair's%20Report%20on%20APS-URSI%202022%20Denver%20Conference.pdf

(2) General Chair of the *2018 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2018*, March 25-29, 2018, Denver, Colorado, USA, with record participation,
http://aces-society.org/conference/Denver_2018/

(3) General Chair of the *2021 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2021*, August 1-5, 2021, Online Conference.
https://aces-society.org/conference/Online-Live_2021/

(4) General Chair of the *11th International Workshop on Finite Elements for Microwave Engineering – FEM2012*, June 4-6, 2012, The Stanley Hotel, Estes Park, Colorado, USA, with record participation,
http://www.engr.colostate.edu/FEM2012

(5)   General Chair of the *14th International Workshop on Finite Elements for Microwave Engineering – FEM2018*, September 10-14, 2018, Cartagena de Indias, Colombia, http://www.iceaa-offshore.org/j3/images/documenti/FEM_18_Call_For_Papers.pdf

ORGANIZER AND CHAIR OF CONFERENCE SESSIONS

http://www.engr.colostate.edu/~notaros/Service/service.htm#Sessions

(1)   Organized/coordinated Commission B (and joint) Special Sessions for the *2018 USNC-URSI National Radio Science Meeting*, January 4-7, 2018, Boulder, Colorado (10 special sessions, 70 papers).

(2)   Organized/coordinated Commission B (and joint) Special Sessions for the *2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado (8 special sessions, 63 papers).

(3)   Organized/coordinated Commission B Special Sessions for the *2016 USNC-URSI National Radio Science Meeting*, January 6-9, 2016, Boulder, Colorado (9 special sessions, 54 papers).

(4)   Organizer and host of the *Second CO-EM Group* (of professors and researchers in Colorado working in Electromagnetics area) *Meeting*, December 2, 2016, Colorado State University.

(5)   Organizer and Chair of the Plenary Session for the *2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting – APS/URSI 2022*, July 14, 2022, Denver, Colorado, www.2022apsursi.org/plenary_talks.php.

(6)   Co-Organizer of NRSM 2022 Plenary Session, Theme: "RF Spectrum Use, Management, and Interference Mitigation," for the *2022 USNC-URSI National Radio Science Meeting*, January 6, 2022, Boulder, Colorado.

(7)   Co-Organizer and Co-Chair (with Dr. CJ Reddy and Prof. Douglas Werner) of the Plenary Panel "Current Needs in CEM," for the *2023 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2023*, March 27, 2023, Monterey, California.

(8)   Organizer and Chair of the Special Session "Advances in Frequency-Domain CEM Techniques and Applications," for the *2023 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2023*, March 27, 2023, Monterey, California.

(9)   Organizer and Chair of the Special Session "Advances in Frequency-Domain CEM Techniques and Applications," for the *2020 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2020*, July 30, 2020, Monterey, California, Online Conference.

(10)   Organizer and Chair of the Special Session "Advances in Frequency-Domain CEM Techniques and Applications," for the *21st International Conference on Electromagnetics in Advanced Applications – ICEAA 2019*, September 11, 2019, Granada, Spain.

(11)   Organizer and Chair of the Special Session "Advances in Frequency-Domain CEM Techniques and Applications," for the *2019 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2019*, April 16, 2019, Miami, Florida.

(12)   Organizer and Chair (with Prof. Yahya Rahmat-Samii) of the Special Session "Advances in CEM and Emerging Applications," for the *2017 USNC-URSI National Radio Science Meeting*, January 4, 2017, Boulder, Colorado.

(13)   Organizer and Chair (with Prof. Zoya Popovic and Prof. Erdem Topsakal) of the Special Session "Magnetic Resonance Imaging," for the *2017 USNC-URSI National Radio Science Meeting*, January 4, 2017, Boulder, Colorado.

(14) Organizer and Chair (with Prof. Juan Zapata) of the Special Session "Advanced FEM and Hybrid Techniques," for the *13th International Workshop on Finite Elements for Microwave Engineering – FEM2016*, May 16-18, 2016, Florence, Italy.

(15) Organizer and Chair (with Prof. Yahya Rahmat-Samii) of the Special Session "Advances in Computational EM and Emerging Applications," for the *2016 USNC-URSI National Radio Science Meeting*, January 7, 2016, Boulder, Colorado.

(16) Organizer (with Prof. Sourajeet Roy) of Special Session "Uncertainty Quantification in Computational EM and Signal/Power Integrity Verification" for the *2015 IEEE Symposium on Electromagnetic Compatibility & Signal Integrity – EMC&SI 2015*, March 19, 2015, Silicon Valley, California.

(17) Organizer and Chair (with Prof. Thomas Eibert) of the Special Session "Advanced FEM and Hybrid Techniques," *12th International Workshop on Finite Elements for Microwave Engineering – FEM2014*, May 15, 2014, Chengdu, China.

(18) Organizer (with Prof. Branko Kolundzija) of Special Session "Higher Order CEM: Development and Applications" for the *29th International Review of Progress in Applied Computational Electromagnetics – ACES 2013*, March 24-28, 2013, Monterey, California.

(19) Organizer and Chair of Special Session "25 Years of Progress and Future Challenges in Applied Computational Electromagnetics" for the *25th Annual Review of Progress in Applied Computational Electromagnetics – ACES 2009*, March 10, 2009, Monterey, California.

(20) Organizer and Chair of the Special Session "Emerging Techniques and Applications for Computational Modeling Technologies: Academic and Commercial Aspects and Challenges," for the *URSI CNC/USNC North American Radio Science Meeting - URSI 2007*, July 24, 2007, Ottawa, ON, Canada.

(21) Organizer and Chair of the Special Session "Emerging Computational Electromagnetic Modeling Technologies: Academic and Commercial Aspects and Challenges" for the *2006 IEEE APS International Symposium and USNC/URSI Radio Science Meeting*, July 10, 2006, Albuquerque, NM (AP special session).

(22) Organizer and Chair (with Prof. Branko Kolundzija) of Special Session "Higher Order Numerical Methods" for the *28th International Review of Progress in Applied Computational Electromagnetics – ACES 2012*, April 10-14, 2012, Columbus, Ohio.

(23) Organizer and Chair of the Special Session "Higher Order Computational Electromagnetics" of the *2005 IEEE APS International Symposium and USNC/URSI Radio Science Meeting*, July 7, 2005, Washington, D.C. (joint AP/URSI B special session).

(24) Chair of Session "Numerical Electromagnetics," *2023 USNC-URSI National Radio Science Meeting*, January 13, 2023, Boulder, Colorado.

(25) Chair of Session "Machine Learning Applications for Remote Sensing," *2023 USNC-URSI National Radio Science Meeting*, January 13, 2023, Boulder, Colorado.

(26) Chair of Session "Numerical Methods," *2022 USNC-URSI National Radio Science Meeting*, January 5, 2022, Boulder, Colorado.

(27) Chair of Session "Frequency-Domain Methods," *2021 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, December 9, 2021, Singapore.

(28) Chair of Session "Antenna Theory, Design, and Measurements," *2021 USNC-URSI National Radio Science Meeting*, January 6, 2021, Boulder, Colorado, Online Conference.

(29) Chair of Session "Numerical Methods," *2021 USNC-URSI National Radio Science Meeting*, January 6, 2021, Boulder, Colorado, Online Conference.

(30) Chair of Session "Finite Element Methods," *2019 IEEE International Symposium on Antennas and Propagation*, July 9, 2019, Atlanta, Georgia.

(31) Chair of Session "Computational Electromagnetics II," *2019 IEEE International Symposium on Antennas and Propagation*, July 12, 2019, Atlanta, Georgia.

(32) Co-chair of Special Session "Advances in Curved Patch Modeling," *2019 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2019*, April 15, 2019, Miami, Florida.

(33) Chair of Session "Numerical Methods," *2019 USNC-URSI National Radio Science Meeting*, January 10, 2019, Boulder, Colorado.

(34) Chair of Session "Analytical and Theoretical Electromagnetics," *2019 USNC-URSI National Radio Science Meeting*, January 11, 2019, Boulder, Colorado.

(35) Chair of Session "Applications of millimeter-wave and 5G antenna systems," *2018 IEEE International Symposium on Antennas and Propagation*, July 12, 2018, Boston, MA, USA.

(36) Chair of Session "Sensor Network and Cognitive Radio," *2018 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), July 12, 2018, Boston, MA, USA.

(37) Chair of Session "Imaging and Monitoring in Medical Applications," *2018 USNC-URSI National Radio Science Meeting*, January 5, 2018, Boulder, Colorado.

(38) Chair of Session "Numerical Methods," *2018 USNC-URSI National Radio Science Meeting*, January 6, 2018, Boulder, Colorado.

(39) Chair of Session "Integral Equation Applications," *2017 IEEE International Symposium on Antennas and Propagation*, July 10, 2017, San Diego, California.

(40) Chair of Session "Fast Direct and Iterative Integral-Equation Solvers," *2016 IEEE International Symposium on Antennas and Propagation*, June 29, 2016, Fajardo, Puerto Rico.

(41) Chair of Session "Advanced Remote Sensing and Radar Techniques and Applications," *2016 IEEE International Symposium on Antennas and Propagation*, June 29, 2016, Fajardo, Puerto Rico.

(42) Chair of Session "Electromagnetic Imaging and Sensing," *2016 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), June 30, 2016, Fajardo, Puerto Rico.

(43) Chair of Session "Numerical Methods," *2016 USNC-URSI National Radio Science Meeting*, January 6, 2016, Boulder, Colorado.

(44) Chair of Session "RCS and Scattering," *2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting*, July 21, 2015, Vancouver, BC, Canada.

(45) Chair of Session "Radar Metrology and Clutter Modeling," *2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting*, July 22, 2015, Vancouver, BC, Canada.

(46) Chair of Session "Frequency-Domain Integral-Equation Methods," *2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting*, July 23, 2015, Vancouver, BC, Canada.

(47) Chair of Session "Medical Imaging and Sensing," *2015 IEEE International Symposium on Antennas and Propagation and North American Radio Sci. Meeting*, July 23, 2015, Vancouver, BC, Canada.

(48) Chair of Session "Parallel and special-processor based numerical methods," *2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting*, July 24, 2015, Vancouver, BC, Canada.

(49) Chair of Session "Accelerated Computing Methods for Numerical Electromagnetics I," *2014 IEEE Antennas and Propagation Society International Symposium*, July 10, 2014, Memphis, Tennessee.

(50) Chair of Session "Accelerated Computing Methods for Numerical Electromagnetics II," *2014 IEEE Antennas and Propagation Society International Symposium*, July 10, 2014, Memphis, Tennessee.

(51) Chair of Session "Numerical Methods," *2014 USNC-URSI National Radio Science Meeting*, January 10, 2014, Boulder, Colorado.

(52) Chair of Session "Scattering, Diffraction, and RCS II," *2013 IEEE Antennas and Propagation Society International Symposium*, July 8, 2013, Orlando, Florida.

(53) Chair of Session "Finite Element Domain Decomposition Methods," *2013 IEEE Antennas and Propagation Society International Symposium*, July 12, 2013, Orlando, Florida.

(54) Chair of Session "Numerical Methods," *2013 USNC-URSI National Radio Science Meeting*, January 10, 2013, Boulder, Colorado.

(55) Chair of Session "Advances in Integral Equation Methods," *2012 IEEE Antennas and Propagation Society International Symposium*, July 10, 2012, Chicago, Illinois.

(56) Chair of Session "Applications of Numerical Methods," *2012 IEEE Antennas and Propagation Society International Symposium*, July 9, 2012, Chicago, Illinois.

(57) Chair of Session "Numerical Methods," *2012 USNC-URSI National Radio Science Meeting*, January 6, 2012, Boulder, Colorado.

(58) Member of the Host Committee of the *2005 AMTA* (*Antenna Measurement Techniques Association*) *Symposium*, October 30 – November 4, 2005, Newport, Rhode Island.

(59) Chair for the Session "Method of Moments Basis Functions and Grids" of the *2003 IEEE Antennas and Propagation Society International Symposium*, June 26, 2003, Columbus, Ohio.

(60) Chair for the Session "Electromagnetics Education" of the *2002 IEEE Antennas and Propagation Society International Symposium*, June 17, 2002, San Antonio, Texas.

(61) Chair for the Session "Applications of Integral Equation Techniques" of the *2001 IEEE Antennas and Propagation Society International Symposium*, July 10, 2001, Boston, Massachusetts.

UNIVERSITY SERVICE

http://www.engr.colostate.edu/~notaros/Service/service.htm#UnivService

- Chair of the ECE Curriculum Committee, Department of Electrical and Computer Engineering, Colorado State University, 2010–2017; member 2008–.

- Member of the College Curriculum Committee, College of Engineering, CSU, 2009–2017.

- Member of the University Task Force on Institutional Learning Outcomes (ILO), CSU, 2017–2018.

- Member of the University Distinguished Teaching Scholars Selection Committee, CSU, 2018, 2019, 2021, and 2022.

- Member of the Search Committee for the Associate Dean for Academic and Student Affairs, Walter Scott, Jr. College of Engineering, CSU, 2021.

- Member of the 2021 Interdisciplinary Scholarship Award (IDSA) Selection Committee, Office of the Vice President for Research, CSU.

- Member of the CSU System Board of Governors Excellence in Undergraduate Teaching Award Selection Committee, 2020.

- ECE manager for ABET accreditation visit, for EE and CpE Undergraduate Programs, College of Engineering, Colorado State University, 2012–2013.

- Member of the College ABET Committee, College of Engineering, CSU, 2012–2013.

- Chair of the ECE Faculty Search Committee, 2006/2007, CSU.

- Member of the ECE Academic Advisor Search Committee, 2012/2013, CSU.

- Initiator and organizer of the new ECE Seminar Series, 2007, 2008, 2009, 2010, CSU.

- Member of the ECE Tenure and Promotion Committee, CSU, 2006–.

- Representative of UMass Dartmouth campus (together with the Provost and another faculty member) on the newly established UMass system-wide Research Council. The council has been appointed by President Jack Wilson to advise him and the vice presidents on policies to enhance research activity on the five campuses. The kick-off meeting with the president and vice presidents occurred on May 5, 2006.

- Member of the University Committee to Support Research and Creative Activity (new committee to solicit and review proposals for Chancellor's Research/UMass Healey Endowment Grants), University of Massachusetts Dartmouth.

- Member of Chancellor's Advisory Committee for the Chancellor's Colloquium Series, UMD.

- Member of the Faculty Senate, UMD.

- Member of the University Curriculum Committee (2002-2004), UMD.

- Founding Director of the Telecommunications Laboratory in the Advanced Technology and Manufacturing Center (ATMC) at UMass Dartmouth.

- Performed the work that led up to equipment donations valued at about $100,000 for the ATMC Telecommunications (Antenna) Laboratory, UMD.

- Chair of the College of Engineering Research Seed Initiative Grants Review Committee, UMD.

- Member of the ECE Graduate Committee, UMD.

- Chair of the ECE Ph.D. Qualifying Examination Committee, UMD.

- Chair of the ECE Web and Publications Committee, UMD.

- Member of the ECE Faculty Evaluation Standards Committee, UMD.

- Member of the Electrical Engineering Curriculum Committee, UMD.

- Member of the ECE Faculty Evaluation Committee, UMD.

- Coordinator of the ECE Microwave Teaching Laboratory, UMD.

- General Chair (for five years, 1994-1998) of the Organization and Steering Committee of a joint national entrance examination (in mathematics, physics, and chemistry) for 10 schools (departments) in engineering and natural sciences of the University of Belgrade, Yugoslavia, for the admission of

new students (attempted every year by as many as about 4,000 prospective students, taking the tests simultaneously over two days in three large halls at Belgrade Fairgrounds).

BOOKS – TEXTBOOKS

http://www.engr.colostate.edu/~notaros/Publications/publications.htm#Textbooks

(1)   B. M. Notaros, "*Electromagnetics*," textbook, 840 pages (PEARSON Prentice Hall, 2010).

(2)   B. M. Notaros, "*MATLAB®-Based Electromagnetics*," textbook, 416 pages, (PEARSON Prentice Hall, 2013).

(3)   B. M. Notaros, "*Conceptual Electromagnetics*," textbook, 568 pages (CRC Press, Taylor and Francis, LLC, 2017).

(4)   B. M. Notaros, "*Conceptual Questions in Electromagnetics*," 160 pages, an e-supplement to "*Electromagnetics*" (PEARSON Prentice Hall, 2010).

(5)   B. M. Notaros, "*Computer Exercises in Electromagnetics Using MATLAB*," 350 pages, e-book, supplement to "*Electromagnetics*" (PEARSON Prentice Hall, 2010).

(6)   B. M. Notaros, V. V. Petrovic, M. M. Ilic, and A. R. Djordjevic, B. M. Kolundzija, and M. B. Dragovic, "*Collection of Examination Questions and Problems in Electromagnetics*" (371 pages) (Academic Press, Belgrade, Yugoslavia, 1998) (in Serbian language).

(7)   A. R. Djordjevic, G. N. Bozilovic, and B. M. Notaros, "*Collection of Examination Problems in Fundamentals of Electrical Engineering with Solutions, Part I, Electrostatic Fields and Circuits with dc Currents*" (159 pages) (Academic Press, Belgrade, Yugoslavia, 1997) (in Serbian language).

(8)   A. R. Djordjevic, G. N. Bozilovic, and B. M. Notaros, "*Collection of Examination Problems in Fundamentals of Electrical Engineering with Solutions, Part II, Magnetism and Circuits with ac Currents*" (164 pages) (Academic Press, Belgrade, Yugoslavia, 1997) (in Serbian language).

BOOKS – MONOGRAPHS

http://www.engr.colostate.edu/~notaros/Publications/publications.htm#BookChapters

(1)   B. M. Notaros, "Higher Order Methods in Computational Electromagnetics," *IET*, writing in progress (contract signed on October 17, 2018).

CHAPTERS IN BOOKS – MONOGRAPHS

http://www.engr.colostate.edu/~notaros/Publications/publications.htm#BookChapters

(1)   B. M. Notaros, R. McCullough, S. B. Manic, and A. A. Maciejewski, "Teaching and learning electromagnetics through MATLAB programming of electromagnetic fields" (Chapter 4) in *Teaching electromagnetics: Innovative approaches and pedagogical stra*tegies, K. T. Selvan and K. F. Warnick (eds.), *CRC Press, Taylor and Francis, LLC*, 2021, pp. 49–75.

(2) B. M. Notaros and S. Yan, "New trends in finite element methods," in *New Trends in Computational Electromagnetics*, Özgür Ergül (ed.), *The Institution of Engineering and Technology (IET)*, 2019, pp. 259–313.

(3) B. M. Notaros and L. C. Kempel, "Computational Electromagnetics for Antennas," in *Antenna Engineering Handbook, 5th edition*, J. L. Volakis (ed.), *McGraw-Hill Education*, 2018, pp. 1343‒1375.

(4) B. M. Notaros, M. M. Ilic, S. V. Savic, and A. B. Manic, "Construction, Modeling, and Analysis of Transformation-Based Metamaterial Invisibility Cloaks," (Chapter 4) Invited Summary Review Chapter, C.D. Geddes (ed.), *Reviews in Plasmonics 2015*, *Springer*, 2015, pp. 69‒101.

(5) B. D. Popovic and B. M. Notaros, "Large-Domain MoM for CAD of Antennas and Scatterers" in *Applied Computational Electromagnetics: State of the Art and Future Trends*, Edited by N.K. Uzunogly, K.S. Nikita, and D.I. Kaklamani, NATO ASI Series, Series F: Computer and Systems Sciences, Vol. 171 (Springer, Berlin, 2000), pp.46‒59.

JOURNAL PAPERS

http://www.engr.colostate.edu/~notaros/Publications/publications.htm#JournalPapers

(1) J. Corrado, J. J. Harmon, M. M. Ilic, and B. M. Notaros, "FEM_2D: A Rust Package for 2D Finite Element Method Computations with Extensive Support for *hp*-refinement," *Journal of Open Source Software*, Accepted for publication, 2023.

(2) B. M. Notaros, "Polarimetric Weather Radar: Overview of Principles and Applications," *IEEE Antennas and Propagation Magazine*, Vol. 64, No. 5, October 2022, pp. 43–54.

(3) J. J. Harmon and B. M. Notaroš, "Accelerated Adaptive Error Control and Refinement for SIE Scattering Problems," *IEEE Transactions on Antennas and Propagation*, Vol. 70, No. 10, October 2022, pp. 9497–9510.

(4) J. J. Harmon and B. M. Notaros, "Adaptive *hp*-Refinement for 2-D Maxwell Eigenvalue Problems: Method and Benchmarks," *IEEE Transactions on Antennas and Propagation*, Vol. 70, No. 6, June 2022, pp. 4663–4673.

(5) J. G. Wolynski, M. M. Ilic, K. M. Labus, B. M. Notaros, C. M. Puttlitz, and K. C. McGilvray, "Direct Electromagnetic Coupling to Determine Diagnostic Bone Fracture Stiffness," *Annals of Translational Medicine*, Vol. 10, No. 9, May 2022, pp. 510.

(6) J. G. Wolynski, M. M. Ilic, B. M. Notaros, K. M. Labus, C. M. Puttlitz, and K. C. Mcgilvray, "Vivaldi Antennas for Contactless Sensing of Implant Deflections and Stiffness for Orthopaedic Applications," *IEEE Access*, Vol. 10, 2022, pp. 1151–1161.

(7) J. G. Wolynski, K. M. Labus, J. T. Easley, B. M. Notaros, M. M. Ilic, C. M. Puttlitz, and K. C. McGilvray, "Diagnostic Prediction of Ovine Fracture Healing Outcomes via a Novel Multi-Location Direct Electromagnetic Coupling Antenna," *Annals of Translational Medicine*, Vol. 9, No. 15, August 2021, pp. 1223.

(8) C. Key, J. J. Harmon, and B. M. Notaros, "Correlations in A posteriori Error Trends for the Finite Element Method in the Presence of Changing Material Parameters," *IEEE Antennas and Wireless Propagation Letters*, Vol. 20, No. 12, December 2021, pp. 2516–2518.

(9) J. J. Harmon, C. Key, D. Estep, T. Butler, and B. M. Notaros, "Adjoint Sensitivity Analysis for Uncertain Material Parameters in Frequency Domain 3-D FEM," *IEEE Transactions on Antennas and Propagation*, Vol. 69, No. 10, October 2021, pp. 6669–6679.

(10) C. Key, A. Hicks, and B. M. Notaros, "Advanced Deep Learning-Based Supervised Classification of Multi-Angle Snowflake Camera Images," *Journal of Atmospheric and Oceanic Technology*, Vol. 38, No. 8, August 2021, pp. 1399–1414.

(11) S. Kasdorf, B. Troksa, C. Key, J. Harmon and B. M. Notaros, "Advancing Accuracy of Shooting and Bouncing Rays Method for Ray-Tracing Propagation Modeling Based on Novel Approaches to Ray Cone Angle Calculation," *IEEE Transactions on Antennas and Propagation*, Vol. 69, No. 8, August 2021, pp. 4808–4815.

(12) C. Key and B. M. Notaros, "Predicting Macro Basis Functions for Method of Moments Scattering Problems Using Deep Neural Networks," *IEEE Antennas and Wireless Propagation Letters*, Vol. 20, No. 7, July 2021, pp. 1200–1204.

(13) B. M. Notaros, "Using Conceptual Questions in Electromagnetics Education," *IEEE Antennas and Propagation Magazine*, Vol. 63, No. 3, June 2021, pp. 128–137.

(14) B. M. Notaros, "Meteorological Electromagnetics: Optical and Radar Measurements, Modeling, and Characterization of Snowflakes and Snow," **Invited Article** (first ever in this new category), *IEEE Antennas and Propagation Magazine*, Vol. 63, No. 2, April 2021, pp. 14–27, featured on the cover of the magazine, https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9392835. **Winner of the 2022 IEEE Antennas and Propagation Edward E. Altshuler Prize Paper Award**.

(15) J. J. Harmon, C. Key, D. Estep, T. Butler, and B. M. Notaros, "Adjoint-based Accelerated Adaptive Refinement in Frequency Domain 3-D Finite Element Method Scattering Problems," *IEEE Transactions on Antennas and Propagation*, Vol. 69, No. 2, February 2021, pp. 940–949.

(16) C. Key, J. Harmon, and B. M. Notaros, "Discrete Surface Ricci Flow for General Surface Meshing in Computational Electromagnetics Using Iterative Adaptive Refinement," *IEEE Transactions on Antennas and Propagation*, Vol. 69, No. 1, January 2021, pp. 332–346.

(17) S. Kasdorf, B. Troksa, J. Harmon, C. Key, and B. M. Notaros, "Shooting-Bouncing-Rays Technique to Model Mine Tunnels: Theory and Accuracy Validation," **invited paper**, Special Issue on ACES2020 Conference, *ACES Journal*, Vol. 35, No. 11, November 2020, pp. 1268–1269.

(18) S. Kasdorf, B. Troksa, J. Harmon, C. Key, and B. M. Notaros, "Shooting-Bouncing-Rays Technique to Model Mine Tunnels: Algorithm Acceleration," **invited paper**, Special Issue on ACES2020 Conference, *ACES Journal*, Vol. 35, No. 11, November 2020, pp. 1330–1331.

(19) C. Key, B. A. Troksa, S. Kasdorf and B. M. Notaros, "Non-Self-Adjacent Ray Classes for Parallelizable Shooting–Bouncing Ray Tracing Double Count Removal," *IEEE Journal on Multiscale and Multiphysics Computational Techniques*, Vol. 5, 2020, pp. 245-254.

(20) S. Tiku, S. Pasricha, B. Notaros, and Q. Han, "A Hidden Markov Model based smartphone heterogeneity resilient portable indoor localization framework," *Journal of Systems Architecture*, Volume 108, 2020, 101806.

(21) C. Key, A. Small, D. Estep, T. Butler, and B. M. Notaros, "A Posteriori Error Estimation and Adaptive Discretization Refinement Using Adjoint Methods in CEM: A Study with a One-Dimensional Higher-Order FEM Scattering Example," *IEEE Transactions on Antennas and Propagation*, Vol. 68, No. 5, May 2020, pp. 3791–3806.

(22) C. Key and B. M. Notaros, "Data-Enabled Advancement of Computation in Engineering: A Robust Machine Learning Approach to Accelerating Variational Methods in Electromagnetics and Other

Disciplines," *IEEE Antennas and Wireless Propagation Letters*, Vol. 19, No. 4, April 2020, pp. 626–630.

(23) M. M. Ilic, A. A. Tonyushkin, P. S. Athalye, N. J. Sekeljic, A. J. M. Kiruluta, and B. M. Notaros, "RF Magnetic Field Profiling with a Dielectric Bore Lining for Traveling Waves in a 3-T MRI Scanner: A Computational Study," *ACES Journal,* Vol. 35, No. 3, March 2020, pp. 245–249.

(24) A. Hicks and B. M. Notaros, "Method for Classification of Snowflakes Based on Images by a Multi-Angle Snowflake Camera Using Convolutional Neural Networks," *Journal of Atmospheric and Oceanic Technology*, Vol. 36, December 2019, pp. 2267– 2282.

(25) G.-J. Huang, V. N. Bringi, A. J. Newman, G. Lee, D. Moisseev, and B. M. Notaros, "Dual-Wavelength Radar Technique Development for Snow Rate Estimation: A Case Study from GCPEx," *Atmospheric Measurement Techniques*, Vol. 12, 2019, pp. 1409–1427.

(26) B. M. Notaros, R. McCullough, P. S. Athalye, and A. A. Maciejewski, "New Partially Flipped Electromagnetics Classroom Approach Using Conceptual Questions," *International Journal of Engineering Education*, Vol. 35, No. 4, 2019, pp. 1215–1223.

(27) K. M. Labus, C. J. Sutherland, B. M. Notaros, M. M. Ilic, G. Chaus, D. Keiser, and, and C. M. Puttlitz, "Direct Electromagnetic Coupling for Non-Invasive Measurements of Stability in Simulated Fracture Healing," *Journal of Orthopaedic Research*, 2019, pp. 1164–1171.

(28) B. M. Notaros, R. McCullough, S. B. Manic, and A. A. Maciejewski, "Computer-assisted learning of electromagnetics through MATLAB programming of electromagnetic fields in the creativity thread of an integrated approach to electrical engineering education," *Computer Applications in Engineering Education*, Vol. 27, 2019, pp. 271–287.

(29) S. B. Manic and B. M. Notaros, "Surface Integral Computation for the Higher Order Surface Integral Equation Method of Moments," **invited paper***,* Special Issue on Advanced Computational Electromagnetic Methodologies and Techniques, *ACES Journal*, Vol. 34, No. 2, February 2019, pp. 201–203.

(30) B. Troksa, C. Key, F. Kunkel, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Ray Tracing Using Shooting-Bouncing Technique to Model Mine Tunnels: Theory and Verification for a PEC Waveguide," **invited paper**, Special Issue on Advanced Computational Electromagnetic Methodologies and Techniques, *ACES Journal*, Vol. 34, No. 2, February 2019, pp. 224–225.

(31) C. Key, A. Smull, B. M. Notaros, D. Estep, and T. Butler, "Adjoint Methods for Uncertainty Quantification in Applied Computational Electromagnetics: FEM Scattering Examples," **invited paper***,* Special Issue on Advanced Computational Electromagnetic Methodologies and Techniques, *ACES Journal*, Vol. 34, No. 2, February 2019, pp. 213–215.

(32) K. M. Labus, B. M. Notaros, M. M. Ilic, C. J. Sutherland, A. Holcomb and C. M. Puttlitz, "A Coaxial Dipole Antenna for Passively Sensing Object Displacement and Deflection for Orthopaedic Applications," *IEEE Access*, Vol. 6, 2018, pp. 68184–68194.

(33) P. S. Athalye, M. M. Ilic, P. F. Van de Moortele, A. J. M. Kiruluta, and B. M. Notaros, "Multi-Channel Helical-Antenna Inner-Volume RF Coils for Ultra-High-Field MR Scanners," *Concepts in Magnetic Resonance*, Vol. 48B, Issue 4, October 2018, pp. 1–14.

(34) P. S. Athalye, B. M. Notaros, and M. M. Ilic, "Full-Wave Modeling of RF Exciters Using WIPL-D: Road to Real-Time Simulation and Optimization," **invited paper**, Special Issue on Cutting-Edge Modeling and Applications of Electromagnetic Devices and Fields, *ACES Journal*, 2018, Vol. 33, No. 10, October 2018, pp. 1156–1158.

(35) S. B. Manic, M. Thurai, V. N. Bringi, and B. M. Notaros, "Scattering Calculations for Asymmetric Raindrops during a Line Convection Event: Comparison with Radar Measurements," *Journal of Atmospheric and Oceanic Technology*, Vol. 35, June 2018, pp. 1169–1180.

(36) P. Kennedy, M. Thurai, C. Praz, V. N. Bringi, A. Berne, and B. M. Notaros, "Variations in Snow Crystal Riming and Z_{DR}: A Case Analysis," *Journal of Applied Meteorology and Climatology*, Vol. 57, March 2018, pp. 695–707.

(37) M. M. Ilic and B. M. Notaros, "Slotted-waveguide array radio frequency coil for ultra-high-field magnetic resonance imaging," *Concepts in Magnetic Resonance*, Vol. 48B, Issue 1, February 2018, pp. 1–11.

(38) D. J. Mennitt, K. M. Fristrup, and B. M. Notaros, "Characterization of gain and directivity of exponential horn receivers," *Journal of the Acoustical Society of America*, Vol. 142, No. 5, November 2017, pp. 3257–3266.

(39) A. P. Smull, A. B. Manic, S. B. Manic, and B. M. Notaros, "Anisotropic Locally-Conformal Perfectly Matched Layer for Higher Order Curvilinear Finite-Element Modeling," *IEEE Transactions on Antennas and Propagation*, Vol. 65, No. 12, December 2017, pp. 7157–7165.

(40) G.-J. Huang, C. Kleinkort, V. N. Bringi, and B. M. Notaros, "Winter precipitation particle size distribution measurement by Multi-Angle Snowflake Camera," *Atmospheric Research*, Vol. 198, 2017, pp. 81–96.

(41) M. Thurai, S. Manic, M. Schönhuber, V. N. Bringi, and B. M. Notaros, "Scattering Calculations at C-band for Asymmetric Raindrops Reconstructed from 2D Video Disdrometer Measurements," *Journal of Atmospheric and Oceanic Technology*, Vol. 34, April 2017, pp. 765–776.

(42) A. B. Manic, A. P. Smull, F.-H. Rouet, X. S. Li, and B. M. Notaros, "Efficient Scalable Parallel Higher Order Direct MoM-SIE Method with Hierarchically Semiseparable Structures for 3D Scattering," *IEEE Transactions on Antennas and Propagation*, Vol. 65, No. 5, May 2017, pp. 2467–2478.

(43) C. Kleinkort, G.-J. Huang, V. N. Bringi, and B. M. Notaros, "Visual Hull Method for Realistic 3D Particle Shape Reconstruction Based on High-Resolution Photographs of Snowflakes in Free Fall from Multiple Views," *Journal of Atmospheric and Oceanic Technology*, Vol. 34, March 2017, pp. 679–702.

(44) M. Thurai, P. Gatlin, V. N. Bringi, W. Petersen, P. Kennedy, B. Notaros, and L. Carey, "Toward Completing the Raindrop Size Spectrum: Case Studies Involving 2D-Video Disdrometer, Droplet Spectrometer, and Polarimetric Radar Measurements," *Journal of Applied Meteorology and Climatology*, Vol. 56, April 2017, pp. 877–896.

(45) A. A. Maciejewski, T. W. Chen, Z. S. Byrne, M. A. de Miranda, L. B. Sample McMeeking, B. M. Notaros, A. Pezeshki, S. Roy, A. M. Leland, M. D. Reese, A. H. Rosales, R. F. Toftness, and O. Notaros, "A Holistic Approach to Transforming Undergraduate Electrical Engineering Education," Special Section "Innovations in Electrical and Computer Engineering Education", *IEEE Access*, Vol. 5, pp. 8148–8161, 2017.

(46) V. N. Bringi, P. C. Kennedy, G.-J. Huang, C. Kleinkort, M. Thurai, and B. M. Notaros, "Dual-polarized radar and surface observations of a winter graupel shower with negative Z_{dr} column," *Journal of Applied Meteorology and Climatology*, Vol. 56, February 2017, pp. 455–470.

(47) P. S. Athalye, N. J. Sekeljic, M. M. Ilic, A. A. Tonyushkin, and B. M. Notaros, "Subject-loaded quadrifilar helical-antenna RF coil with high B_1^+ field uniformity and large FOV for 3-T MRI," *Concepts in Magnetic Resonance*, Vol. 46B, Issue 3, July 2016, pp. 106–117.

(48) E. Chobanyan, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "Volume Integral Equation-Based Diakoptic Method for Electromagnetic Modeling," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 64, No. 10, October 2016, pp. 3097–3107.

(49) B. M. Notaros, V. N. Bringi, C. Kleinkort, P. Kennedy, G.-J. Huang, M. Thurai, A. J. Newman, W. Bang, and G. Lee, "Accurate Characterization of Winter Precipitation Using Multi-Angle Snowflake Camera, Visual Hull, Advanced Scattering Methods and Polarimetric Radar," **invited paper**, Special Issue "Advances in Clouds and Precipitation," *Atmosphere*, vol. 7, no. 6, pp. 81–111, June 2016.

(50) E. Chobanyan, N. J. Sekeljic, A. B. Manic, M. M. Ilic, V. N. Bringi, and B. M. Notaros, "Efficient and Accurate Computational Electromagnetics Approach to Precipitation Particle Scattering Analysis Based on Higher-Order Method of Moments Integral Equation Modeling," *Journal of Atmospheric and Oceanic Technology*, Vol. 32, October 2015, pp. 1745–1758.

(51) M. Thurai, E. Chobanyan, V. N. Bringi and B. M. Notaros, "Large Raindrops Against Melting Hail: Calculation of Specific Differential Attenuation, Phase and Reflectivity," *Electronics Letters*, Vol. 51, No. 15, 23rd July 2015, pp. 1140–1142.

(52) N. J. Sekeljic, M. M. Ilic, and B. M. Notaros, "Spatially Large-Domain and Temporally Entire-Domain Electric-Field Integral Equation Method of Moments for 3-D Scattering Analysis in Time Domain," *IEEE Transactions on Antennas and Propagation*, Vol. 63, No. 6, June 2015, pp. 2614-2626.

(53) E. Chobanyan, M. M. Ilic, and B. M. Notaros, "Lagrange-type modeling of continuous dielectric permittivity variation in double-higher-order volume integral equation method," *Radio Science*, Vol. 50, Issue 5, May 2015, pp. 406–414.

(54) M. Thurai, V. N. Bringi, A. B. Manic, N. J. Sekeljic, and B. M. Notaros, "Investigating rain drop shapes, oscillation modes, and implications for radiowave propagation," *Radio Science*, Vol. 49, Issue 10, October 2014, pp. 921-932.

(55) A. B. Manic, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "Diakoptic Approach Combining Finite-Element Method and Method of Moments in Analysis of Inhomogeneous Anisotropic Dielectric and Magnetic Scatterers," **invited paper**, Special Issue on Finite Elements for Microwave Engineering, *Electromagnetics*, Vol. 34, Issue 3-4, April 2014, pp. 222-238.

(56) A. B. Manic, M. Djordjevic, and B. M. Notaros, "Duffy Method for Evaluation of Weakly Singular SIE Potential Integrals Over Curved Quadrilaterals With Higher Order Basis Functions," *IEEE Transactions on Antennas and Propagation*, Vol. 62, No. 6, June 2014, pp. 3338-3343.

(57) E. Chobanyan, M. M. Ilic, and B. M. Notaros, "Double-Higher-Order Large-Domain Volume/Surface Integral Equation Method for Analysis of Composite Wire-Plate-Dielectric Antennas and Scatterers," *IEEE Transactions on Antennas and Propagation*, Vol. 61, No. 12, December 2013, pp. 6051-6063.

(58) M. Davidovic, A. Ilic, M. Tasic, B. Notaros, and M. Ilic, "A Comparison of Modal Electromagnetic Field Distributions in Analytical and Numerical Solutions," *Microwave Review*, Vol. 19, No. 1, September 2013, pp. 26-30.

(59) B. M. Notaros, "Geometrical Approach to Vector Analysis in Electromagnetics Education", *IEEE Transactions on Education*, Vol. 56, No. 3, August 2013, pp. 336-345.

(60) S. V. Savic, A. B. Manic, M. M. Ilic, and B. M. Notaros, "Efficient Higher Order Full-Wave Numerical Analysis of 3-D Cloaking Structures," *Plasmonics*, Vol. 8, Issue 2, June 2013, pp. 455-463.

(61) N. J., Sekeljic, M. M. Ilic, and B. M. Notaros, "Higher Order Time-Domain Finite Element Method for Microwave Device Modeling with Generalized Hexahedral Elements," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 61, No. 4, April 2013, pp. 1425-1434.

(62) S. V. Savic, B. M. Notaros, and M. M. Ilic, "Conformal cubical 3-D transformation-based metamaterial invisibility cloak," *Journal of the Optical Society of America A*, Vol. 30, No. 1, January 2013, pp. 7-12.

(63) M. D. Davidovic, B. M. Notaros, and M. M. Ilic, "B-spline Entire-Domain Higher Order Finite Elements for 3-D Electromagnetic Modeling," *IEEE Microwave and Wireless Components Letters*, vol.22, no.10, October 2012, pp.497-499.

(64) A. B. Manic, S. B. Manic, M. M. Ilic, and B. M. Notaros, "Large Anisotropic Inhomogeneous Higher Order Hierarchical Generalized Hexahedral Finite Elements for 3-D Electromagnetic Modeling of Scattering and Waveguide Structures," *Microwave and Optical Technology Letters*, Vol. 54, No. 7, July 2012, pp. 1644-1649.

(65) E. M. Klopf, N. J. Sekeljic, M. M. Ilic, and B. M. Notaros, "Optimal Modeling Parameters for Higher Order MoM-SIE and FEM-MoM Electromagnetic Simulations", *IEEE Transactions on Antennas and Propagation*, vol.60, no.6, pp.2790-2801, June 2012.

(66) M. M. Ilic, S. V. Savic, A. Z. Ilic, and B. M. Notaros, "Hybrid Higher Order FEM-MoM Analysis of Continuously Inhomogeneous Electromagnetic Scatterers," *Telfor Journal*, Vol. 3, No. 2, 2011, pp. 121-124.

(67) M. M. Ilic, S. V. Savic, A. Z. Ilic, and B. M. Notaros, "Constant Speed Parametrization Mapping of Curved Boundary Surfaces in Higher Order Moment-Method Electromagnetic Modeling," *IEEE Antennas and Wireless Propagation Letters*, Vol. 10, 2011, pp. 1457-1460.

(68) E. M. Klopf, S. B. Manic, M. M. Ilic, and B. M. Notaros, "Efficient Time-Domain Analysis of Waveguide Discontinuities Using Higher Order FEM in Frequency Domain," *Progress In Electromagnetics Research*, Vol. 120, 2011, pp. 215-234.

(69) S. V. Savic, M. M. Ilic, B. M. Kolundzija, and B. M. Notaros, "Efficient Modeling of Complex Electromagnetic Structures Based on the Novel Algorithm for Spatial Segmentation Using Hexahedral Finite Elements," *Telfor Journal*, Vol. 2, No. 2, 2010, pp. 98-101.

(70) M. M. Ilic and B. M. Notaros, "Higher Order FEM-MoM Domain Decomposition for 3-D Electromagnetic Analysis", *IEEE Antennas and Wireless Propagation Letters*, Vol. 8, 2009, pp. 970-973.

(71) M. M. Ilic, A. Z. Ilic, and B. M. Notaros, "Continuously Inhomogeneous Higher Order Finite Elements for 3-D Electromagnetic Analysis," *IEEE Transactions on Antennas and Propagation*, Vol. 57, No. 9, September 2009, pp. 2798-2803.

(72) M. M. Ilic, M. Djordjevic, A. Z. Ilic, and B. M. Notaros, "Higher order hybrid FEM-MoM technique for analysis of antennas and scatterers," *IEEE Trans. Antennas Propag.*, vol. 57, pp. 1452-1460, May 2009.

(73) A. Z. Ilic, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Analysis of Electromagnetic Scatterers Using Hybrid Higher Order FEM-MoM Technique," *Telfor Journal*, Vol. 1, No. 2, 2009, pp. 53-56.

(74) B. M. Notaros, "Higher Order Frequency-Domain Computational Electromagnetics," **invited review paper,** Special Issue on Large and Multiscale Computational Electromagnetics, *IEEE Transactions on Antennas and Propagation*, Vol. 56, No. 8, August 2008, pp. 2251-2276.

(75) M. M. Ilic, A. Z. Ilic, and B. M. Notaros, "Comparison of Higher Order FEM and MoM/SIE Approaches in Analyses of Closed- and Open-Region Electromagnetic Problems," *Facta Universitatis, Ser.: Elec. Energ.*, Vol. 21, No. 2, August 2008, pp. 209-220.

(76) M. M. Ilic and B. M. Notaros, "Higher Order Large-Domain Hierarchical FEM Technique for Electromagnetic Modeling Using Legendre Basis Functions on Generalized Hexahedra," *Electromagnetics*, Vol. 26, No. 7, October 2006, pp. 517-529.

(77) M. M. Ilic, A. Z. Ilic, and B. M. Notaros, "Efficient Large-Domain 2-D FEM Solution of Arbitrary Waveguides Using p-Refinement on Generalized Quadrilaterals," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 53, No. 4, April 2005, pp.1377-1383.

(78) M. Djordjevic and B. M. Notaros, "Higher Order Hybrid Method of Moments–Physical Optics Modeling Technique for Radiation and Scattering from Large Perfectly Conducting Surfaces," *IEEE Transactions on Antennas and Propagation*, Vol. 53, No. 2, February 2005, pp.800-813.

(79) M. Djordjevic and B. M. Notaros, "Double Higher Order Method of Moments for Surface Integral Equation Modeling of Metallic and Dielectric Antennas and Scatterers," *IEEE Transactions on Antennas and Propagation*, Vol. 52, No. 8, August 2004, pp. 2118-2129.

(80) M. M. Ilic, A. Z. Ilic, and B. M. Notaros, "Higher Order Large-Domain FEM Modeling of 3-D Multiport Waveguide Structures with Arbitrary Discontinuities," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 52, No. 6, June 2004, pp.1608-1614.

(81) M. Djordjevic and B. M. Notaros, "Higher-Order Hierarchical Basis Functions with Improved Orthogonality Properties for Moment-Method Modeling of Metallic and Dielectric Microwave Structures," *Microwave and Optical Technology Letters*, April 20 2003, Vol. 37, No. 2, pp. 83-88.

(82) B. M. Notaros and B. D. Popovic, "Generalized Excitations and Loads for Electromagnetic Analysis with Boundary Elements," **invited paper**, *International Journal of Engineering Analysis with Boundary Elements*, ELSEVIER, Special Issue on Electromagnetics, April 2003, Vol.27, (4), pp.333-343.

(83) M. M. Ilic and B. M. Notaros, "Higher Order Hierarchical Curved Hexahedral Vector Finite Elements for Electromagnetic Modeling," *IEEE Transactions on Microwave Theory and Techniques*, March 2003, Vol.51, (3), pp.1026-1033. **Winner of the 2005 IEEE MTT-S Microwave Prize**.

(84) B. M. Notaros, B. D. Popovic, J. P. Weem, R. A. Brown, and Z. Popovic, "Efficient large-domain MoM solutions to electrically large practical EM problems," *IEEE Transactions on Microwave Theory and Techniques*, January 2001, Vol. 49, (1), pp.151-159.

(85) B. M. Notaros and B. D. Popovic, "Large-domain integral-equation method for analysis of general 3-D electromagnetic structures," *IEE Proceedings - Microwaves, Antennas and Propagation*, December 1998, Vol. 145, (6), pp.491-495.

(86) B. D. Popovic, B. M. Notaros, and Z. B. Popovic: "A new class of cophasal antenna arrays with simple compact feeds," *Electromagnetics*, 1998, Vol. 18, (5), pp.507-518.

(87) B. M. Notaros and B. D. Popovic, "General entire-domain Galerkin method for analysis of wire antennas in the presence of dielectric bodies," *IEE Proceedings - Microwaves, Antennas and Propagation*, February 1998, Vol. 145, (1), pp.13-18. **Winner of the 1999 IEE Marconi Premium.**

(88) B. M. Notaros and B. D. Popovic, "Entire-domain analysis of high permittivity/conductivity 3D dielectric scatterers," *Journal of Applied Electromagnetism*, October 1997, Vol. 1, (1), pp.1-12.

(89) B. M. Notaros and B. D. Popovic, "Optimized entire-domain moment-method analysis of 3D dielectric scatterers," *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, 1997, Vol. 10, pp.177-192.

(90) B. M. Notaros and B. D. Popovic, "General entire-domain method for analysis of dielectric scatterers," *IEE Proceedings - Microwaves, Antennas and Propagation*, December 1996, Vol. 143, (6), pp.498-504.

(91) B. D. Popovic and B. M. Notaros, "Moment-method analysis of volume dielectric scatterers. Four independent entire-domain solutions: Is entire-domain philosophy a luxury or necessity in the method of moments?" (**invited review paper**), *International Journal of Microwave and Millimeter-Wave Computer-Aided Engineering*, Vol. 6, (6), November 1996, pp.454-473.

(92) B. D. Popovic and B. M. Notaros, "Entire-domain polynomial approximation of volume currents in the analysis of dielectric scatterers," *IEE Proceedings - Microwaves, Antennas and Propagation*, June 1995, Vol. 142, (3), pp.207-212.

(93) B. D. Popovic and B. M. Notaros, "PPP method for analysis of electromagnetic fields in inhomogeneous media," *IEE Proceedings H (Microwaves, Antennas and Propagation)*, February 1993, Vol. 140, (1), pp.36-42.

PEER-REVIEWED CONFERENCE PAPERS AND ABSTRACTS

http://www.engr.colostate.edu/~notaros/Publications/publications.htm#ConferencePapers

(1) H. Thant, M. Zhizhin, and B. M. Notaros, "Improved Accuracy of Snowflake Characterizations Using the Snowflake Measurement and Analysis System," *Proc. 2023 USNC-URSI National Radio Science Meeting*, January 10-14, 2023, Boulder, Colorado.

(2) H. Thant, M. Zhizhin, and B. M. Notaros, "Machine Learning Based Classification of Snowflake Geometries in Multi-Camera Observation Systems," *Proc. 2023 USNC-URSI National Radio Science Meeting*, January 10-14, 2023, Boulder, Colorado.

(3) S. Kasdorf, J. Harmon, and B. Notaros, "Higher Order Parameter Sampling Used in Radar Cross-Section Uncertainty Predictions," *Proc. 2023 USNC-URSI National Radio Science Meeting*, January 10-14, 2023, Boulder, Colorado.

(4) S. Kasdorf, J. Harmon, and B. Notaros, "Using Gaussian Regression for Reconstruction of Probability Distribution Function in Scattering Uncertainty Prediction," *Proc. 2023 USNC-URSI National Radio Science Meeting*, January 10-14, 2023, Boulder, Colorado.

(5) J. J. Harmon and B. M. Notaros, "Reducing the Computational Expense of Uncertainty Quantification in Computational Electromagnetics: A Goal-Oriented Perspective," **invited paper**, Special Session "International Standards Development and Applications," *Proceedings of the 2022 IEEE International Symposium on Antennas and Propagation*, July 10–15, 2022, Denver, Colorado, pp. 659–660.

(6) B. M. Notaros, V. N. Bringi, H. Thant, G.-J. Huang, and D. B. Wolff, "Measurement and Characterization of Winter Precipitation at Wallops Island Snow Field Site," *Proceedings of the 2022 IEEE International Symposium on Antennas and Propagation*, July 10–15, 2022, Denver, Colorado, pp. 519–520.

(7) J. Corrado, J. J. Harmon, and B. M. Notaros, "A Low Cost Implementation of Unconstrained Anisotropic hp-Refinement for CEM," *Proceedings of the 2022 IEEE International Symposium on Antennas and Propagation*, July 10–15, 2022, Denver, Colorado, pp. 1348–1349.

(8)   H. Thant, G.-J. Huang, V. N. Bringi, and B. M. Notaros, "Snowflake Measurement and Analysis System (SMAS)," *Proceedings of the 2022 IEEE International Symposium on Antennas and Propagation*, July 10–15, 2022, Denver, Colorado, pp. 523–524.

(9)   J. J. Harmon and B. M. Notaros, "On Objective-Aware Adaptive Methods in Computational Electromagnetics: Comparing Error Estimation and Indication Approaches for Problems with Singular Solutions," *Proceedings of the 2022 IEEE International Symposium on Antennas and Propagation*, July 10–15, 2022, Denver, Colorado, pp. 1528–1529.

(10) H. Thant, A. Hicks, C. Key, and B. M. Notaros, "Classification of Snowflakes Using Multi-View Optical Instruments," *Proceedings of the 2022 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), July 10–15, 2022, Denver, Colorado.

(11) J. J. Harmon and B. M. Notaros, "On Adaptive Error Equilibration for the PMCHWT Formulation of the EFIE-MFIE Problem Through a posteriori Error Estimation and Error Prediction," *Proceedings of the 2022 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), July 10–15, 2022, Denver, Colorado.

(12) J. Corrado, J. Harmon, and B. M. Notaros, "Efficiency Benefits of Anisotropic hp-Refinement for CEM," Special Session "Multiscale and Stochastic Modeling in Computational Electromagnetics," *Proc. 2022 USNC-URSI National Radio Science Meeting*, January 4-8, 2022, Boulder, Colorado.

(13) J. J. Harmon, J. Corrado, and B. M. Notaros, "On the Maxwell Eigenvalue Problem and Exponential Convergence Through Adaptive Error Control in the Presence of Singularities," *Proc. 2022 USNC-URSI National Radio Science Meeting*, January 4-8, 2022, Boulder, Colorado.

(14) B. M. Notaros, "Conversion of Electromagnetics Courses to Synchronous Online Delivery Using Active and Problem-Based Learning," **invited paper**, Special Session "Transforming Electromagnetics Education after Covid," *Proceedings of the 2021 IEEE International Symposium on Antennas and Propagation*, December 4–10, 2021, Singapore.

(15) J. J. Harmon and B. M. Notaros, "Adaptive Refinement for Scattered Field Quantities of Interest for the Coupled EFIE-MFIE," *Proceedings of the 2021 IEEE International Symposium on Antennas and Propagation*, December 4–10, 2021, Singapore.

(16) J. Corrado, J. Harmon, and B. M. Notaros, "An Alternative *hp*-Refinement Methodology in CEM: Applications to Problems with Singular Solutions in 2D FEM," *Proceedings of the 2021 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), December 4–10, 2021, Singapore.

(17) J. J. Harmon and B. M. Notaros, "Advances in Error Estimation and Uncertainty Quantification for Numerical Methods in CEM," **invited paper**, Special Session "Advanced Methods for Numerical Electromagnetic Analysis," *Proceedings of the 2021 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2021*, August 1-5, 2021, Online Conference.

(18) S. Kasdorf, B. Troksa, and B. M. Notaros, "Some Advances in Shooting-Bouncing-Rays Asymptotic Propagation Methodologies," **invited paper**, Special Session "Recent Advances in Asymptotic Methods," *Proceedings of the 2021 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2021*, August 1-5, 2021, Online Conference.

(19) J. Corrado, P. Athalye, M. M. Ilic, and B. M. Notaros, "Design and Optimization of Helical RF Coils for Use in High-Field Strength Magnetic Resonance Imaging at 4.7T," *Proc. 2021 USNC-URSI National Radio Science Meeting*, January 4-9, 2021, Boulder, Colorado, Online Conference.

(20) J. J. Harmon and B. M. Notaros, "Enhancing Adaptive Mesh Refinement Efficiency: Adjoint-Based Error Estimation and Targeted Refinement in 3-D FEM," *Proc. 2021 USNC-URSI National Radio Science Meeting*, January 4-9, 2021, Boulder, Colorado, Online Conference.

(21) S. Kasdorf, B. Troksa, and B. M. Notaros, "Comparative Study of Propagation Modeling of Tunnel Environments Using Asymptotic and Full-Wave Techniques," *Proc. 2021 USNC-URSI National Radio Science Meeting*, January 4-9, 2021, Boulder, Colorado, Online Conference.

(22) S. Kasdorf, B. Troksa, J. Harmon, C. Key, and B. M. Notaros, "Shooting-Bouncing-Rays Technique to Model Mine Tunnels: Theory and Accuracy Validation," **invited paper**, Special Session "Advances in Frequency-Domain CEM Techniques and Applications," *Proceedings of the 2020 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2020*, July 27–31, 2020, Online Conference.

(23) S. Kasdorf, B. Troksa, J. Harmon, C. Key, and B. M. Notaros, "Shooting-Bouncing-Rays Technique to Model Mine Tunnels: Algorithm Acceleration," **invited paper**, Special Session "High Performance Computing in Electromagnetics," *Proceedings of the 2020 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2020*, July 27–31, 2020, Online Conference.

(24) B. M. Notaros, "Higher Order Computational Electromagnetics, Uncertainty Quantification, and Meshing Techniques with Applications in Wireless Communication, Medicine, and Meteorology," **invited plenary paper**, *Proceedings of the 14th International Conference on Advanced Technologies, Systems and Services in Telecommunications – TELSIKS 2019*, October 23-25, 2019, Nis, Serbia, pp. 2–11.

(25) B. M. Notaros, J. Harmon, and C. Key, "Generalized Automatic Surface Reconstruction for CEM Simulations," **invited paper**, Special Session "Numerical Methods in Electromagnetics," *Proceedings of the 21st International Conference on Electromagnetics in Advanced Applications – ICEAA 2019*, September 9-13, 2019, Granada, Spain, pp. 1334–1335.

(26) B. M. Notaros, S. B. Manic, C. Key, J. Harmon, and D. Estep, "Overview of Some Advances in Higher Order Frequency-Domain CEM Techniques," **invited paper**, Special Session "Advances in Frequency-Domain CEM Techniques and Applications," *Proceedings of the 21st International Conference on Electromagnetics in Advanced Applications – ICEAA 2019*, September 9-13, 2019, Granada, Spain, pp. 1330–1333.

(27) B. M. Notaros, J. Harmon, C. Key, D. Estep, and T. Butler, "Error Estimation and Uncertainty Quantification Based on Adjoint Methods in Computational Electromagnetics," **invited paper**, Special Session "Applications of Machine/Deep Learning and Uncertainty Quantification Techniques in Computational Electromagnetics," *Proceedings of the 2019 IEEE International Symposium on Antennas and Propagation*, July 7–12, 2019, Atlanta, GA, USA, pp. 221–222.

(28) C. Key and B. M. Notaros, "Automatic Generalized Quadrilateral Surface Meshing in Computational Electromagnetics by Discrete Surface Ricci Flow," *Proceedings of the 2019 IEEE International Symposium on Antennas and Propagation*, July 7–12, 2019, Atlanta, GA, USA, pp. 1853–1854.

(29) J. Harmon and B. M. Notaros, "The Dual Weighted Residual and Error Estimation in Double Higher-Order FEM," *Proceedings of the 2019 IEEE International Symposium on Antennas and Propagation*, July 7–12, 2019, Atlanta, GA, USA, pp. 771–772.

(30) J. Harmon, C. Key, S. B. Manic, and B. M. Notaros, "Construction and Application of Geometrically Optimal Curvilinear Surface Elements for Double Higher-Order MoM-SIE Modeling," *Proceedings of the 2019 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), July 7–12, 2019, Atlanta, GA, USA.

(31) S. Tiku, S. Pasricha, B. Notaros and Q. Han, "SHERPA: A Lightweight Smartphone Heterogeneity Resilient Portable Indoor Localization Framework," *2019 IEEE International Conference on Embedded Software and Systems (ICESS)*, June 2-3, 2019, Las Vegas, NV, USA.

(32) J. Harmon, C. Key, and B. M. Notaros, "Geometrically Conformal Quadrilateral Surface-Reconstruction for MoM-SIE Simulations," **invited paper**, Special Session "Advances in Curved Patch Modeling," *Proceedings of the 2019 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2019*, April 15–19, 2019, Miami, Florida, USA.

(33) J. Harmon, C. Key, B. M. Notaros, D. Estep, and T. Butler, "Adjoint-Based Uncertainty Quantification in Frequency-Domain Double Higher-Order FEM," **invited paper**, Special Session "Advances in Frequency-Domain CEM Techniques and Applications," *Proceedings of the 2019 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2019*, April 15–19, 2019, Miami, Florida, USA.

(34) B. M. Notaros, "Electromagnetics Education and Its Future and Challenges," **invited paper**, *Proceedings of the 13th European Conference on Antennas and Propagation – EuCAP2019*, 31 March – 5 April 2019, Krakow, Poland, pp. 1389–1392.

(35) A. Hicks, V. N. Bringi, and B. M. Notaros, "Utilization of Convolutional Neural Networks in Classification of Snowflakes Based on Images by a Multi-Angle Snowflake Camera," *Proc. 2019 USNC-URSI National Radio Science Meeting*, January 9-12, 2019, Boulder, Colorado.

(36) J. Harmon, C. Key, B. Troksa, T. Butler, D. Estep, and B. M. Notaros, "Adjoint-based A Posteriori Error Estimation and its Applications in CEM: DHO FEM Techniques and 3D Scattering Problems," *Proc. 2019 USNC-URSI National Radio Science Meeting*, January 9-12, 2019, Boulder, Colorado.

(37) C. Key, J. Harmon, B. Troksa, and B. M. Notaros, "Fast Sphere Intersection Tests for Shooting-Bouncing Ray Tracing: Space Partitioning and Ray Path Voxelization," *Proc. 2019 USNC-URSI National Radio Science Meeting*, January 9-12, 2019, Boulder, Colorado.

(38) B. Troksa, C. Key, J. Harmon, S. Manic, and B. M. Notaros, "Applications of Shooting-Bouncing Ray Tracing to Modeling Propagation in Underground Mines," *Proc. 2019 USNC-URSI National Radio Science Meeting*, January 9-12, 2019, Boulder, Colorado.

(39) B. M. Notaros, A. J. Newman, G.-J. Huang, V. N. Bringi, G. Lee, and D. Moisseev, "A Pathway for Improvement of Frozen Phase Precipitation Processes Based on Synthesizing Advanced In-Situ and Radar Observations and Sophisticated Bin Microphysical Scheme Outputs," *2018 AGU Fall Meeting*, December 10-14, 2018, Washington, D.C.

(40) B. M. Notaros, C. Key, A. Smull, D. Estep, and T. Butler, "Applications of Adjoint Solutions for Predicting and Analyzing Numerical Error of Forward Solutions Based on Higher Order Finite Element Modeling," *Proceedings of the 14th International Workshop on Finite Elements for Microwave Engineering – FEM2018*, September 10-14, 2018, Cartagena de Indias, Colombia, pp. 3–4.

(41) B. M. Notaros, C. Key, S. B. Manic, B. Troksa, M. M. Ilic, and S. Savic, "Efficient Electromagnetic Modeling of Wireless Signal Propagation in Underground Mine Tunnels," *Proceedings of the 14th International Workshop on Finite Elements for Microwave Engineering – FEM2018*, September 10-14, 2018, Cartagena de Indias, Colombia, p. 7.

(42) C. Key, A. Smull, D. Estep, T. Butler, and B. M. Notaros, "A Posteriori Element-wise Error Quantification for FEM Solvers Using Higher Order Basis Functions," *Proceedings of the 2018 IEEE International Symposium on Antennas and Propagation*, July 8–13, 2018, Boston, MA, USA, pp. 1319–1320.

(43) C. Key, B. Troksa, F. Kunkel, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Comparison of Three Sampling Methods for Shooting-Bouncing Ray Tracing Using a Simple Waveguide Model," *Proceedings of the 2018 IEEE International Symposium on Antennas and Propagation*, July 8–13, 2018, Boston, MA, USA, pp. 2273–2274.

(44) A. A. Maciejewski, T. Chen, Z. S. Byrne, M. D. Reese, B. M. Notaros, A. Pezeshki, S. Roy, A. M. Leland, L. B. Sample McMeeking, and T. J. Siller, "WIP: Throwing Away the Course-Centric Teaching Model to Enable Change," *Proceedings of the 125th American Society for Engineering Education Annual Conference & Exposition – ASEE2018*, June 24-27, 2018, Salt Lake City, UT.

(45) S. Roy, B. M. Notaros, A. Pezeshki, T. Chen, T. J. Siller, A. A. Maciejewski, and L. B. Sample McMeeking, "WIP: Active Learning Model as a Way to Prepare Students for Knowledge Integration," *Proceedings of the 125th American Society for Engineering Education Annual Conference & Exposition – ASEE2018*, June 24-27, 2018, Salt Lake City, UT.

(46) T. J. Siller, A. A. Maciejewski, A. M. Leland, T. Chen, B. M. Notaros, S. Roy, and A. C. Hicks, "Using Student Video Presentations to Develop Communication Skills," *Proceedings of the 125th American Society for Engineering Education Annual Conference & Exposition – ASEE2018*, June 24-27, 2018, Salt Lake City, UT.

(47) S. B. Manić and B. M. Notaroš, "Surface Integral Computation for the Higher Order Surface Integral Equation Method of Moments," *Proceedings of the 2018 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2018*, March 25–29, 2018, Denver, Colorado, USA. **Winner of ACES2018 Student Paper Competition Second Prize**.

(48) P. S. Athalye, B. M. Notaros, and M. M. Ilic, "Full-Wave Modeling of RF Exciters Using WIPL-D: Road to Real-Time Simulation and Optimization," **invited paper**, Special Session "Advances in Electromagnetic Modeling by WIPL-D", *Proceedings of the 2018 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2018*, March 25–29, 2018, Denver, Colorado, USA.

(49) C. Key, A. Smull, B. M. Notaros, D. Estep, and T. Butler, "Adjoint Methods for Uncertainty Quantification in Applied Computational Electromagnetics: FEM Scattering Examples," *Proceedings of the 2018 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2018*, March 25–29, 2018, Denver, Colorado, USA.

(50) B. Troksa, C. Key, F. Kunkel, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Ray Tracing Using Shooting-Bouncing Technique to Model Mine Tunnels: Theory and Verification for a PEC Waveguide," *Proceedings of the 2018 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2018*, March 25–29, 2018, Denver, Colorado, USA.

(51) S. B. Manic, A. B. Manic, and B. M. Notaros, "Accuracy Study of Singularity Extraction Method for Near-Singular and Near-Hypersingular Surface Integrals in Higher Order Method of Moments," **invited paper**, Special Session "Advances in Computational Electromagnetics on Modern Computers," *Proc. 2018 USNC-URSI National Radio Science Meeting*, January 4-7, 2018, Boulder, Colorado.

(52) C. Key, B. Troksa, S. Savić, M. M. Ilic, and B. M. Notaros, "EM Simulation and Characterization of Underground Mines Using Ray Tracing, Vector Parabolic Equation, and Hybrid Approaches," *Proc. 2018 USNC-URSI National Radio Science Meeting*, January 4-7, 2018, Boulder, Colorado.

(53) S. B. Manic, M. M. Ilic, and B. M. Notaros, "Generalized Scattering Matrix Computation Based on 2-D and 3-D Higher Order FEM and Mode Matching for Underground Mine Tunnel Modeling," *Proc. 2018 USNC-URSI National Radio Science Meeting*, January 4-7, 2018, Boulder, Colorado.

(54) P. Athalye, M. M. Ilic, and B. M. Notaros, "Using Slotted Waveguides for RF Excitation in Magnetic Resonance Imaging at 7 T," *Proc. 2018 USNC-URSI National Radio Science Meeting*, January 4-7, 2018, Boulder, Colorado.

(55) A. Hicks, M. Benzel, V. N. Bringi, and B. M. Notaros, "3D Shape Reconstruction of Winter Precipitation Particles Based on Multi-Angle Images Obtained by Two Advanced Optical

Disdrometers," *Proc. 2018 USNC-URSI National Radio Science Meeting*, January 4-7, 2018, Boulder, Colorado.

(56) B. M. Notaros, A. J. Newman, L. Xue, G.-J. Huang, and V. N. Bringi, "Validation of Bin Microphysics in Large Eddy Simulations for the 30 January 2012 Lake Effect Snow Case During GCPEx," *2017 AGU Fall Meeting*, 11-15 December 2017, New Orleans, LA.

(57) G.-J. Huang, V. N. Bringi, G. Lee, and B. Notaros, "Application of Dual-Wavelength Radar Technique for Snowfall Estimation: A Synoptic Case from GCPEx Field Campaign," *International Conference on Weather Forecast and Hydrological Application of Radar 2017*, November 8-10, 2017, Yeosu, Korea.

(58) G.-J. Huang, V. N. Bringi, G. Lee, and B. Notaros, "Dual-Wavelength Radar Technique for Winter Precipitation Studies: A Case from GCPEx Field Campaign," *Asian Conference on Meteorology 2017 – ACM2017*, October 23-24, 2017, Busan, Korea.

(59) B. M. Notaros, C. Praz, P. Kennedy, M. Thurai, A. Berne, and V. N. Bringi, "A Case Event Analysis Using Multi-Angle-Snowflake-Camera and CSU-CHILL X-Band Observations in Greeley, Colorado: Degree of Riming and Particle Classification," *American Meteorological Society's 38th Conference on Radar Meteorology*, August 28-September 1, 2017, Chicago, IL.

(60) W. Bang, K. Kim, G. Lee, G.-J. Huang, M. Thurai, P. Kennedy, V. N. Bringi, and B. Notaros, "A Study on Variability of ZDR and KDP Maxima According to Microphysical Processes through Dual-Polarization Radar and Distrometers Observation," *American Meteorological Society's 38th Conference on Radar Meteorology*, August 28-September 1, 2017, Chicago, IL.

(61) B. M. Notaros, V. N. Bringi, M. Thurai, P. C. Kennedy, G.-J. Huang, G. Lee, W. Bang, K. Kim, and A. J. Newman, "MASCRAD Events: Observations and Analyses of Cases with Contrasting Hydrometeor Forms," *Proceedings of the 2017 IEEE International Symposium on Antennas and Propagation*, July 9–14, 2017, San Diego, California, pp. 197–198.

(62) B. M. Notaros, R. McCullough, P. S. Athalye, and A. A. Maciejewski, "WIP: Using Conceptual Questions to Assess Class Pre-Work and Enhance Student Engagement in Electromagnetics Learning Studio Modules," *Proceedings of the 124th American Society for Engineering Education Annual Conference & Exposition – ASEE2017*, June 25-28, 2017, Columbus, OH.

(63) B. M. Notaros, R. McCullough, S. B. Manic, and A. A. Maciejewski, "WIP: Introducing MATLAB-Based Instruction and Learning in the Creativity Thread of a Novel Integrated Approach to ECE Education," *Proceedings of the 124th American Society for Engineering Education Annual Conference & Exposition – ASEE2017*, June 25-28, 2017, Columbus, OH.

(64) T. Chen, B. Notaros, A. Pezeshki, S. Roy, A. A. Maciejewski, and M. D. Reese, "WIP: Knowledge Integration to Understand Why," *Proceedings of the 124th American Society for Engineering Education Annual Conference & Exposition – ASEE2017*, June 25-28, 2017, Columbus, OH.

(65) Y. Liu, A. A. Maciejewski, A. Pezeshki, B. M. Notaros, T. Chen, and S. Roy, "WIP: Why Math Matters: Demonstrating the Relevance of Mathematics in ECE Education," *Proceedings of the 124th American Society for Engineering Education Annual Conference & Exposition – ASEE2017*, June 25-28, 2017, Columbus, OH.

(66) W. Bang, K. Kim, G. Lee, M. Thurai, P. Kennedy, V. N. Bringi, and B. Notaros, "The variability analysis of Z_{DR} and K_{DP} maxima zone through observation of three winter storms occurring in Colorado, USA," *2017 International Symposium on Weather Radar and Hydrology – WRaH 2017*, April 10–13, 2017, Seoul, Korea.

(67) B. M. Notaros, V. N. Bringi, C. Kleinkort, S. B. Manic, E. Chobanyan G.-J. Huang, P. Kennedy, and M. Thurai, "MoM-SIE Scattering Models of Snow and Ice Hydrometeors Based on 3D Shape

Reconstructions from MASC Images," *Proceedings of the 2017 Applied Computational Electromagnetics Society Conference – ACES 2017*, March 26-30, 2017, Firenze, Italy.

(68) M. Thurai, V. Bringi, P. Kennedy, B. Notaros, and P. Gatlin, "Accurate Characterization of Rain Drop Size Distribution using Meteorological Particle Spectrometer and 2D Video Disdrometer for Propagation and Remote Sensing Applications," **invited paper**, Convened Session "Propagation Aspects in Remote Sensing," *Proceedings of the 2017 11th European Conference on Antennas and Propagation – EuCAP2017*, Paris, France, 19–24 March 2017, pp. 3551–3554.

(69) A. P. Smull, A. B. Manic, and B. M. Notaros, "Parallel Computation in Hierarchically Semiseperable Methods for Surface Integral Equations," **invited paper**, Special Session "Advances in CEM and Emerging Applications," *Proc. 2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado.

(70) P. S. Athalye, M. M. Ilic, A. J. M. Kiruluta, P. F. Van de Moortele, and B. M. Notaros, "High and Ultra-High Field Magnetic Resonance Imaging RF Coil Designs and Optimization," **invited paper**, Special Session "Magnetic Resonance Imaging," *Proc. 2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado.

(71) A. J. M. Kiruluta, P. Bluem, Z. Popovic, P. F. Van de Moortele, and B. M. Notaros, "Magnetic Resonance Imaging at the boundary of Quasi-Static to Far-Field RF Regime," **invited paper**, Special Session "Magnetic Resonance Imaging," *Proc. 2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado.

(72) N. Moin and B. M. Notaros, "Null-Field Generation Method Applied to Double-Higher-Order Method of Moments Solver," *Proc. 2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado.

(73) S. Manic, M. Thurai, V. N. Bringi, and B. Notaros, "Scattering Calculations for Asymmetric Rain Drops Undergoing Mixed Mode Oscillations," *Proc. 2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado.

(74) P. Athalye, M. Thurai, V. N. Bringi, P. C. Kennedy, and B. M. Notaros, "Testing Rainfall Rate Algorithms for CSU-CHILL X-Band Radar," *Proc. 2017 USNC-URSI National Radio Science Meeting*, January 4-7, 2017, Boulder, Colorado.

(75) D. Rover, M. Mina, D. Jacobson, P. Jones, P. J. Zambreno, A. A. Maciejewski, T. W. Chen, Z. Byrne, M. A de Miranda, L. B. Sample McMeeking, B. M. Notaros, A. Rosales, T. J. Siller, M. Reese, A. Leland, L. McNair, T. Martin, and M. Wisnioski, "Impacting Society Through the Responsible Development of Technologies and Systems," *FIE 2016 Catalyzing Collaborative Conversations*, Erie, PA, October 12-15, 2016.

(76) W. Bang, K. Kim, G. Lee, M. Thurai, P. Kennedy, V. N. Bringi, and B. Notaros, "Microphysical Characteristics Analysis of Three Heavy Snowfall Events from the MASCRAD Campaign in Greeley, Colorado, USA," **invited paper**, Special Session "S-F6: Remote Sensing of Precipitation," *Proceedings of the 2016 URSI Asia-Pacific Radio Science Conference – URSI AP-RASC 2016*, August 21–25, 2016, Seoul, Korea, pp. 1555–1557.

(77) B. M. Notaros, A. B. Manic, A. P. Smull, S. B. Manic, X. S. Li, and F.-H. Rouet, "Multiscale Electromagnetic Modeling Using Double-Higher-Order Quadrilateral Meshes and Parallel MoM-SIE Direct Solutions," **invited paper**, Special Session "Multiscale and Multiphysics Computational Techniques and Applications," *Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation*, June 26–July 1, 2016, Fajardo, Puerto Rico, pp. 235–236.

(78) A. P. Smull, A. B. Manic, S. B. Manic, and B. M. Notaros, "Double Higher-Order FEM Modeling Using An Anisotropic Conformal Perfectly Matched Layer," *Proceedings of the 2016 IEEE*

International Symposium on Antennas and Propagation, June 26–July 1, 2016, Fajardo, Puerto Rico, pp. 1119–1120.

(79) B. M. Notaros, V. N. Bringi, C. Kleinkort, G.-J. Huang, M. Thurai, P. Kennedy, S. B. Manic, and A. J. Newman, "Snow Precipitation Measurement and Analysis During MASCRAD Winter Observations," *Proceedings of the 2016 IEEE International Symposium on Antennas and Propagation*, June 26–July 1, 2016, Fajardo, Puerto Rico, pp. 2047–2048.

(80) B. M. Notaros, M. Thurai, V. N. Bringi, S. B. Manic, and P. C. Kennedy, "Measurement and Analysis of Rain Precipitation at MASCRAD Instrumentation Site in Colorado," *Proceedings of the 2016 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), June 26–July 1, 2016, Fajardo, Puerto Rico, pp. 101–102.

(81) B. M. Notaros, A.J.M. Kiruluta, A. Pezeshki, P. S. Athalye, A. P. Smull, M. M. Ilic, and P.-F. Van de Moortele, "Addressing Inhomogeneity of Magnetic Fields in Medical Magnetic Resonance Imaging Applications," *Proceedings of the 2016 USNC-URSI Radio Science Meeting* (Joint with IEEE AP-S Symposium), June 26–July 1, 2016, Fajardo, Puerto Rico.

(82) T. Chen, A. A. Maciejewski, B. M. Notaros, A. Pezeshki, and M. D. Reese, "Mastering the Core Competencies of Electrical Engineering through Knowledge Integration," *123rd American Society for Engineering Education Annual Conference & Exposition – ASEE2016*, June 26-29, 2016, New Orleans, LA.

(83) B. M. Notaros, A. B. Manic, X. S. Li, and F.-H. Rouet, "Fast Scalable Parallel Direct Solutions to Surface Integral Equations in Computational Electromagnetics," **invited paper**, Special Session "Parallel Computation on Multi- And Many-Core Computers," *Proceedings of the 13th International Workshop on Finite Elements for Microwave Engineering – FEM2016*, May 16-18, 2016, Florence, Italy. pp. 149–150.

(84) S. V. Savic, A. Z. Ilic, B. M. Notaros, and M. M. Ilic, "Nonrigorous Symmetric Second-Order Absorbing Boundary Condition: Accuracy, Convergence and Possible Improvements," **invited paper**, Special Session "Advanced FEM and Hybrid Techniques," *Proceedings of the 13th International Workshop on Finite Elements for Microwave Engineering – FEM2016*, May 16-18, 2016, Florence, Italy, pp. 139–140.

(85) P. S. Athalye, M. M. Ilic, P. F. Van de Moortele, A. J. M. Kiruluta, and B. M. Notaros, "Multi-Channel Helical-Antenna Inner-Volume RF Coils for Ultra-High-Field MRI Scanners," *Proceedings of the 24th Scientific Meeting of the International Society for Magnetic Resonance in Medicine*, *ISMRM 2016*, 7–13 May, 2016, Singapore.

(86) A. A. Maciejewski, Z. Byrne, T. W. Chen, A. Cook, G. Dangelmayr, M. A. de Miranda, A. Leland, B. M. Notaros, M. D. Reese, A. Rosales, T. J. Siller, and J. Weston, "Revolutionizing Engineering Departments at Colorado State University and Beyond," *AAAS/NSF Envisioning the Future of Undergraduate STEM Education: Research and Practice*, Washington, DC, April 27-29, 2016.

(87) M. Thurai, P. Kennedy, V. Bringi, B. Notaros, and S. Rutledge, "Propagation Effects At X-band From the 2015 Rain Measurement Campaign in Greeley, Colorado," **invited paper**, Convened Session "Propagation Aspects in Remote Sensing," *Proceedings of the 2016 10th European Conference on Antennas and Propagation – EuCAP2016*, Davos, Switzerland, 10–15 April 2016, pp. 1–5.

(88) B. M. Notaros, A. B. Manic, X. S. Li, and F.-H. Rouet, "Controlling the Accuracy of Double Higher Order Surface Integral Equation Modeling by Relative Tolerance for Matrix Compression," **invited paper**, Special Session "Integral Equation Methods and Applications," *Proceedings of the 2016 Applied Computational Electromagnetics Society Conference – ACES 2016*, March 13-17, 2016, Honolulu, HI, pp. 165–166.

(89) B. M. Notaros, V. N. Bringi, C. Kleinkort, G.-J. Huang, M. Thurai, P. Kennedy, S. B. Manic, A. B. Manic, E. Chobanyan, N. J. Sekeljic, and M. M. Ilic, "Applying Computational EM to Remote Sensing and Characterization of Atmospheric Precipitation in Snow and Rain Observation Campaigns," **invited paper**, Special Session "Advances in Computational EM and Emerging Applications," *Proc. 2016 USNC-URSI National Radio Science Meeting*, January 6-9, 2016, Boulder, Colorado.

(90) C. Kleinkort, G.-J. Huang, S. B. Manic, A. B. Manic, P. Kennedy, V. N. Bringi, and B. M. Notaros, "Ongoing Studies of Winter Precipitation within the MASCRAD Project and Advances to the Observation and Analysis Process," *Proc. 2016 USNC-URSI National Radio Science Meeting*, January 6-9, 2016, Boulder, Colorado.

(91) P. Athalye, N. J. Sekeljic, M. M. Ilic, A.J.M. Kiruluta, P.-F. Van de Moortele, and B. M. Notaros, "Simulation and Experimental Results for Helical-Antenna RF Coils in Ultra-High-Field Magnetic Resonance Imaging Applications," *Proc. 2016 USNC-URSI National Radio Science Meeting*, January 6-9, 2016, Boulder, Colorado.

(92) A. P. Smull, A. B. Manic, S. B. Manic, and B. M. Notaros, "Double-Higher-Order Finite Element Modeling of a Conformal Perfectly Matched Layer for Electromagnetic Scattering Simulation," *Proc. 2016 USNC-URSI National Radio Science Meeting*, January 6-9, 2016, Boulder, Colorado.

(93) S. B. Manic, M. Thurai, V. N. Bringi, and B. M. Notaros, "Analysis of Scattering Characteristics of Ice and Water Rain Particles Using Surface Integral Equation Method and Radar Observations," *Proc. 2016 USNC-URSI National Radio Science Meeting*, January 6-9, 2016, Boulder, Colorado.

(94) B. M. Notaros, V. N. Bringi, A. J. Newman, C. Kleinkort, G.-J. Huang, P. Kennedy, and M. Thurai, "Accurate Characterization of Winter Precipitation Using In-Situ Instrumentation, CSU-CHILL Radar, and Advanced Scattering Methods," *2015 AGU Fall Meeting*, 14-18 December 2015, San Francisco, CA.

(95) P. S. Athalye, N. J. Sekeljic, M. M. Ilic, A. A. Tonyushkin, A. J. M. Kiruluta, P. F. Van de Moortele, and B. M. Notaros, "Long and Short Monofilar and Quadrifilar Helical Antenna RF Coils at 7 T," **Invited Presentation**, *10th Biennial 2015 Minnesota Workshop on High and Ultra-High Field Imaging*, October 1-3, 2015, Minneapolis, MN.

(96) P. S. Athalye, N. J. Sekeljic, M. M. Ilic, A. A. Tonyushkin, and B. M. Notaros, "Using Subject-Loaded Quadrifilar Helical Antennas as RF Body Coils at 3 T," *10th Biennial 2015 Minnesota Workshop on High and Ultra-High Field Imaging*, October 1-3, 2015, Minneapolis, MN.

(97) B. M. Notaros, V. N. Bringi, E. Chobanyan, C. Kleinkort, S. B. Manic, N. J. Sekeljic, A. B. Manic, and M. M. Ilic, "Computation of Particle Scattering Matrices and Polarimetric Radar Variables for Winter Precipitation Using T-Matrix Method, DDA Method, and Higher Order MoM-SIE Method," *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(98) C. Kleinkort, G.-J. Huang, S. Manic, A. Manic, P. Kennedy, J. Hubbert, A. Newman, V. N. Bringi, and B. Notaros, "3D Shape Reconstruction of Snowflakes from Multiple Images, Meshing, Dielectric Constant Estimation, Scattering Analysis, and Validation by Radar Measurements," *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK. **Winner of The Spiros G. Geotis Student Prize.**

(99) V. N. Bringi, B. Notaros, C. Kleinkort, G.-J. Huang, M. Thurai, and P. Kennedy, "Comprehensive Analysis of an Unusual Winter Graupel Shower Event Recorded by an S-Band Polarimetric Radar and Two Optical Imaging Surface Instruments," *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(100) P. C. Kennedy, C. Kleinkort, G.-J. Huang, M. Thurai, A. Newman, J. Hubbert, S. Rutledge, V. N. Bringi, and B. M. Notaros, "Preliminary Results from the Multi-Angle Snowflake Camera and Radar (MASCRAD) Project," *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(101) M. Thurai, V. N. Bringi, P. C. Kennedy, B. Notaros, and P. N. Gatlin, "Towards Completing the Rain Drop Size Distribution Spectrum: A Case Study Involving 2D Video Disdrometer, Droplet Spectrometer, and Polarimetric Radar Measurements in Greeley, Colorado", *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(102) S. Manic, Chobanyan, E., M. Thurai, V. N. Bringi, and B. M. Notaros, "Comparison of Simulated Scattering Characteristics of Large Rain Drops and a Special Form of Melting Hail and Relation to C, S and X Band Radar Observations," *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(103) M. Thurai, E. Chobanyan, V. N. Bringi and B. M. Notaros, "Scattering calculations for rain drops undergoing asymmetric, mixed mode, oscillations and their impact on polarimetric radar variables", *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(104) J. C. Hubbert, S. B. Manic, and B. M. Notaros, "The Effects of the Quasi-Liquid Layer on Ice Crystal Scattering Calculations," *American Meteorological Society's 37th Conference on Radar Meteorology*, 14-18 September, 2015, Norman, OK.

(105) S. V. Savic, B. M. Notaros, and M. M. Ilic, "Accuracy Analysis of the Nonrigorous Second-Order Absorbing Boundary Condition Applied to Large Curved Finite Elements," **invited paper**, Special Session "Finite Methods," *Proceedings of 18th International Conference on Electromagnetics in Advanced Applications – ICEAA 2015*, 7-11 September 2015, Turin, Italy, pp. 58-61.

(106) B. Notaros, V. N. Bringi, C. Kleinkort, G.-J. Huang, E. Chobanyan, M. Thurai, O. Notaros, A. Manic, A. Newman, P. Kennedy, J. Hubbert, T. Lim, W. Brown, and M. Ilic, "Measurement and Characterization of Winter Precipitation at MASCRAD Snow Field Site," *Proceedings of the 2015 IEEE International Symposium on Antennas and Propagation*, July 19-24, 2015, Vancouver, BC, Canada, pp. 979–980.

(107) C. Kleinkort, G.-J. Huang, E. Chobanyan, A. Manic, M. Ilic, A. Pezeshki, V. N. Bringi, and B. Notaros, "Visual Hull Method Based Shape Reconstruction of Snowflakes from MASC Photographs," *Proceedings of the 2015 IEEE International Symposium on Antennas and Propagation*, July 19-24, 2015, Vancouver, BC, Canada, pp. 1122–1123.

(108) C. Kleinkort, G.-J. Huang, V. N. Bringi, and B. M. Notaros, "Polarimetric Scattering Analysis of Snow and Ice Particles Using Field Measurements by 2D-Video Disdrometer," *Proceedings of the 2015 USNC-URSI Radio Science Meeting* (Joint with AP-S Symposium), July 19-24, 2015, Vancouver, BC, Canada, p. 287.

(109) A. B. Manic, F.-H. Rouet, X. S. Li, and B. M. Notaros, "Efficient EM Scattering Analysis Based on MoM, HSS Direct Solver, and RRQR Decomposition," *Proceedings of 2015 IEEE International Symposium on Antennas and Propagation*, July 19-24, 2015, Vancouver, BC, Canada, pp. 1660–1661.

(110) A. B. Manic and B. M. Notaros, "Numerical Computation of Near-Singular and Near-Hypersingular Integrals in Higher Order Method of Moments Using Curved Quadrilateral Patches," *Proceedings of the 2015 USNC-URSI Radio Science Meeting* (Joint with AP-S Symposium), July 19-24, 2015, Vancouver, BC, Canada, p. 117.

(111) M. M. Ilic, N. Sekeljic, P. Athalye, A. A. Tonyushkin, and B. M. Notaros, "RF Excitation in 7 Tesla MRI Systems Using Monofilar Axial-Mode Helical Antenna," *Proceedings of 2015 IEEE International Symposium on Antennas and Propagation*, July 19-24, 2015, Vancouver, BC, Canada, pp. 1346–1347.

(112) M. M. Ilic, I. Perovic, P. Athalye, N. Sekeljic, A. A. Tonyushkin, and B. M. Notaros, "Full-Wave Frequency-Domain Electromagnetic Modelling of RF Fields in MRI Applications," *Proceedings of 2015 IEEE International Symposium on Antennas and Propagation*, July 19-24, 2015, Vancouver, BC, Canada, pp. 971– 972.

(113) P. Athalye, N. Sekeljic, M. M. Ilic, A. A. Tonyushkin, and B. M. Notaros, "Improving Traveling-Wave RF Fields inside Magnetic Resonance Imaging Bores by Incorporating Dielectric Loadings," *Proceedings of the 2015 USNC-URSI Radio Science Meeting* (Joint with AP-S Symposium), July 19-24, 2015, Vancouver, BC, Canada, p. 316.

(114) E. Chobanyan, M. Thurai, V. N. Bringi, and B. M. Notaros, "Electromagnetic Scattering from Large Rain Drops versus Melting Hail," *Proceedings of 2015 IEEE International Symposium on Antennas and Propagation*, July 19-24, 2015, Vancouver, BC, Canada, pp. 760–761.

(115) B. M. Notaros, M. M. Ilic, A. A. Tonyushkin, N. J. Sekeljic, and P. Athalye, "Quadrifilar Helical Antenna as a Whole-Body Traveling-Wave RF Coil for 3T and 7T MRI," *Proceedings of the 23th Scientific Meeting of the International Society for Magnetic Resonance in Medicine*, *ISMRM 2015*, 30 May–5 June, 2015, Toronto, Ontario, Canada, pp.1825.

(116) M. Kabir, R. Khazaka, M. A. H. Talukder, M. A. Dolatsara, E. Chobanyan, A. Smull, S. Roy, and B. M. Notaros, "Non-Intrusive Pseudo Spectral Approach for Stochastic Macromodeling of EM Systems using Deterministic Full-wave Solvers", *23rd IEEE International Conference on Electrical Performance of Electronic Packages and Systems – EPEPS 2014*, October 26-29, 2014, Portland, OR, pp. 235-238 (*Best Poster Paper Award*).

(117) B. M. Notaros, M. M. Ilic, D. I. Olcan, M. Djordjevic, A. B. Manic, and E. Chobanyan, "Hybrid Higher Order Numerical Methods in Electromagnetics," **invited paper**, Special Session "Numerical Methods in Electromagnetics," *Proceedings of 16th International Conference on Electromagnetics in Advanced Applications – ICEAA 2014*, August 3-8, 2014, Palm Beach, Aruba, pp. 411-414.

(118) N. J., Sekeljic, A. B. Manic, E. Chobanyan, M. Thurai, V. N. Bringi, and B. M. Notaros, "Electromagnetic scattering by oscillating rain drops of asymmetric shapes" *Proceedings of 2014 IEEE Antennas and Propagation Society International Symposium*, July 6-12, 2014, Memphis, Tennessee, pp. 1572-1573.

(119) A. B. Manic, E. Chobanyan, M. M. Ilic, and B. M. Notaros, "Parallelization of Double Higher Order FEM and MoM Techniques" *Proceedings of 2014 IEEE Antennas and Propagation Society International Symposium*, July 6-12, 2014, Memphis, Tennessee, pp. 1618-1619.

(120) E. Chobanyan, M. M. Ilic, and B. M. Notaros, "Scattering Analysis Using Generalized Volume-Surface Integral Equation Method of Moments" *Proceedings of 2014 IEEE Antennas and Propagation Society International Symposium*, July 6-12, 2014, Memphis, Tennessee, pp. 2134-2135.

(121) S. B. Manic, M. M. Ilic, and B. M. Notaros, "*p*-Refinement for Large-Domain Waveguide Structures Analyzed by FEM-MM Technique" *Proceedings of 2014 IEEE Antennas and Propagation Society International Symposium*, July 6-12, 2014, Memphis, Tennessee, pp. 2252-2253.

(122) A. B. Manic, E. Chobanyan, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "FEM-SIE and VIE-SIE Diakoptic Domain-Decomposition Electromagnetic Scattering Analyses Using Higher Order Numerical Discretizations," **invited paper**, Special Session "Advanced FEM and Hybrid

Techniques," *12th International Workshop on Finite Elements for Microwave Engineering – FEM2014*, May 14-17, 2014, Chengdu, China.

(123) N. J. Sekeljic, S. B. Manic, M. M. Ilic, and B. M. Notaros, "Efficient Models for Transient Analysis of Passive Microwave Devices Using FEM-TD with Time-Marching and FEM-FD with Discrete Fourier Transform," **invited paper**, Special Session "Time-Domain FEM," *12th International Workshop on Finite Elements for Microwave Engineering – FEM2014*, May 14-17, 2014, Chengdu, China.

(124) E. Chobanyan, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "Efficient Higher Order MoM-VIE/MoM-SIE/Diakoptics Computation of Scattering from Finite Arrays of Arbitrary Dielectric Objects," *Proc. 2014 USNC-URSI National Radio Science Meeting*, January 8-11, 2014, Boulder, Colorado.

(125) N. J. Sekeljic, M. M. Ilic, and B. M. Notaros, "*p*-Refined Large-Domain 3-D Curvilinear FEM Solutions of Arbitrarily Loaded and Shaped Waveguide Sections and Bends in the Time Domain," *Proc. 2014 USNC-URSI National Radio Science Meeting*, January 8-11, 2014, Boulder, Colorado.

(126) E. Chobanyan, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "Combining Diakoptic, VIE-MoM, and SIE-MoM Approaches in Analysis of Dielectric Scatterers," *Proceedings of 2013 IEEE Antennas and Propagation Society International Symposium*, July 7-12, 2013, Orlando, Florida.

(127) N. J. Sekeljic, A. Manic, M. M. Ilic, and B. M. Notaros, "Transient Analysis of 3D Waveguides Using Double- Higher-Order Time-Domain Finite Element Method," *Proceedings of 2013 IEEE Antennas and Propagation Society International Symposium*, July 7-12, 2013, Orlando, Florida.

(128) J. Notaros, E. Chobanyan, V. Chandrasekar, and B. M. Notaros, "Accurate and Efficient Full-Wave Electromagnetic Analysis of Scattering from Hailstones," *Proceedings of 2013 IEEE Antennas and Propagation Society International Symposium*, July 7-12, 2013, Orlando, Florida.

(129) A. B. Manic, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "Diakoptic FEM-MoM Analysis Using Explicit Connection between Field and Current Bases," *Proceedings of 2013 IEEE Antennas and Propagation Society International Symposium*, July 7-12, 2013, Orlando, Florida.

(130) E. Chobanyan, N. J. Sekeljic, A. B. Manic, M. M. Ilic, and B. M. Notaros, "Atmospheric Particle Scattering Computation Using Higher Order MoM-SIE Method," *Proceedings of 2013 IEEE Antennas and Propagation Society International Symposium*, July 7-12, 2013, Orlando, Florida.

(131) M. Davidovic, A. Ilic, M. Tasic, B. Notaros, and M. Ilic, "Convergence of Modal Electromagnetic Fields in a B-spline Finite Element Method," *Proceedings of 57th ETRAN Conference*, June 3-6, 2013, Zlatibor, Serbia, pp. AP1.5.1-4.

(132) M. Thurai, V. N. Bringi, A. B. Manic, and B. M. Notaros, "Ongoing Investigations of Rain Drop Shapes and Oscillation Modes," *Proc. URSI Commission F Triennial Open Symposium on Radiowave Propagation & Remote Sensing*, April 30-May 3, 2013, Ottawa, Canada.

(133) A. B. Manic, M. Djordjevic, E. Smith, and B. M. Notaros, "Numerical Computation of Singular Integrals in Higher Order Method of Moments Using Curved Quadrilateral Patches," *Proc. 2013 USNC-URSI National Radio Science Meeting*, January 9-12, 2013, Boulder, Colorado.

(134) E. Chobanyan, J. Notaros, V. Chandrasekar, and B. Notaros, "Accurate Electromagnetic Modeling of Melting Hail," *Proc. 2013 USNC-URSI National Radio Science Meeting*, January 9-12, 2013, Boulder, Colorado.

(135) E. Chobanyan, M. M. Ilic, and B. M. Notaros, "Higher Order Volume and Surface Integral Equation Modeling of 3-D Scattering and Radiation Problems," *Proc. 2013 USNC-URSI National Radio Science Meeting*, January 9-12, 2013, Boulder, Colorado.

(136)   N. J. Sekeljic, S. B. Manic, M. M. Ilic, and B. M. Notaros, "Direct and Indirect Time-Domain FEM Higher Order Solutions to 3-D Closed-Region Problems," *Proc. 2013 USNC-URSI National Radio Science Meeting*, January 9-12, 2013, Boulder, Colorado.

(137)   S. V. Savic, A. Z. Ilic, B. M. Notaros, and M. M. Ilic, "Acceleration of Higher Order FEM Matrix Filling by OpenMP Parallelization of Volume Integrations," *Proceedings of 20th Telecommunications forum TELFOR 2012*, November 20-22, 2012, Belgrade, Serbia, pp.1183-1184.

(138)   E. Chobanyan, M. Ilic, M. Djordjevic, and B. Notaros, "Efficient Higher Order Volume-Integral-Equation Modeling of Dielectric Scatterers," *Proceedings of 2012 IEEE Antennas and Propagation Society International Symposium*, July 8-14, 2012, Chicago, Illinois.

(139)   A. B. Manic, M. M. Ilic, and B. M. Notaros, "Symmetric Coupling of Finite Element Method and Method of Moments Using Higher Order Elements," *Proceedings of 2012 IEEE Antennas and Propagation Society International Symposium*, July 8-14, 2012, Chicago, Illinois.

(140)   A. B. Manic, D. I. Olcan, M. M. Ilic, and B. M. Notaros, "FEM-MoM-Diakoptic Analysis of Scatterers with Anisotropic Inhomogeneities Using Hierarchical Vector Bases on Large Curved Elements," **invited paper**, Special Session "Advances in Vector Bases for CEM," *11th International Workshop on Finite Elements for Microwave Engineering – FEM2012*, June 4-6, 2012, Estes Park, Colorado.

(141)   N. J. Sekeljic, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Rules for Adoption of Expansion and Integration Orders in FEM Analysis Using Higher Order Hierarchical Bases on Generalized Hexahedral Elements," **invited paper**, Special Session "Adaptive FEM, Higher Order Bases, and Advanced FEM Formulations," *11th International Workshop on Finite Elements for Microwave Engineering – FEM2012*, June 4-6, 2012, Estes Park, Colorado.

(142)   A. B. Manic, M. M. Ilic, and B. M. Notaros, "Symmetric and Nonsymmetric FEM-MoM Techniques Using Higher Order Hierarchical Vector Basis Functions and Curved Parametric Elements," **invited paper**, Special Session "Advances in Hybrid Methods and Multiphysics Problems," *11th International Workshop on Finite Elements for Microwave Engineering – FEM2012*, June 4-6, 2012, Estes Park, Colorado.

(143)   B. M. Notaros, M. M. Ilic, S. V. Savic, N. J. Sekeljic, and A. Z. Ilic, "Accurate and Efficient Curvilinear Geometrical Modeling Using Interpolation Parametric Elements in Higher Order CEM Techniques," **invited paper**, Special Session "Higher Order Numerical Methods", Proceedings of the *28th International Review of Progress in Applied Computational Electromagnetics – ACES 2012*, April 10-14, 2012, Columbus, Ohio, pp. 602-607.

(144)   A. B. Manic, S. B. Manic, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Efficient Electromagnetic Analysis Using Electrically Large Curved p-Refined Hierarchical Anisotropic Inhomogeneous Finite Elements," *Proc. 2012 USNC-URSI National Radio Science Meeting*, January 4-7, 2012, Boulder, Colorado.

(145)   S. B. Manic, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Time-Domain Response of 3-D Waveguide and Scattering Structures Calculated by Higher Order Frequency-Domain FEM Technique and DFT," *Proc. 2012 USNC-URSI National Radio Science Meeting*, January 4-7, 2012, Boulder, Colorado.

(146)   N. J. Sekeljic, E. Chobanyan, M. M. Ilic, and B. M. Notaros, "Rules for Adoption of Expansion and Integration Orders in Moment-Method Computation of Electromagnetic Scattering and Radiation," *Proc. 2012 USNC-URSI National Radio Science Meeting*, January 4-7, 2012, Boulder, Colorado.

(147) S. B. Manic, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Combining finite element method and Fourier transform to analyze waveguide transients," *Proceedings of 19th Telecommunications forum TELFOR 2011*, November 22-24, 2011, Belgrade, Serbia, pp. 1004-1007.

(148) M. M. Ilic, S. V. Savic, and B. M. Notaros, "First Order Absorbing Boundary Condition in Large-Domain Finite Element Analysis of Electromagnetic Scatterers," *Proc. 10th International Conference on Telecommunications in Modern Satellite, Cable and Broadcasting Services – TELSIKS 2011*, October 5-8, 2011, Nis, Serbia.

(149) E. M. Klopf, N. J. Sekeljic, M. M. Ilic, and B. M. Notaros, "Investigations of Optimal Geometrical and Field/Current Modeling Parameters for Higher Order FEM, MoM, and Hybrid CEM Techniques," *Proc. 2011 USNC-URSI National Radio Science Meeting*, January 5-8, 2011, Boulder, Colorado.

(150) D. I. Olcan, M. M. Ilic, B. M. Notaros, B. M. Kolundzija, and A. R. Djordjevic, "Higher Order Diakoptic FEM-MoM Analysis of Electrically Large and Complex Periodic Electromagnetic Scatterers," *Proc. 2011 USNC-URSI National Radio Science Meeting*, January 5-8, 2011, Boulder, Colorado.

(151) M. M. Ilic, S. V. Savis, A. Z. Ilic, and B. M. Notaros, "Hybrid Higher Order FEM-MoM Analysis of Continuously Inhomogeneous Electromagnetic Scatterers," *Proceedings of 18th Telecommunications forum TELFOR 2010*, November 23-25, 2010, Belgrade, Serbia, pp.843-846.

(152) M. M. Ilic, B. M. Notaros, and D. Olcan, "Domain Decomposition in Scattering and Radiation Applications Based on Higher Order FEM-MoM Modeling," **invited paper**, *10th International Workshop on Finite Elements for Microwave Engineering, FEM2010 - Book of Abstracts*, October 12-13, 2010, Meredith, New Hampshire, p.70.

(153) D. I. Olcan, M. M. Ilic, B. M. Notaros, B. M. Kolundzija, and A. R. Djordjevic, "Diakoptic Higher-Order FEM-MoM Approach," *Proceedings of 2010 IEEE Antennas and Propagation Society International Symposium*, July 11-17, 2010, Toronto, Canada.

(154) M. M. Ilic and B. M. Notaros, "Computation of FEM-Domain Fields in the Higher Order Hybrid FEM-MoM Solution," *Proceedings of 2010 IEEE Antennas and Propagation Society International Symposium*, July 11-17, 2010, Toronto, Canada.

(155) S. V. Savic, M. M. Ilic, B. M. Kolundzija, and B. M. Notaros, "Efficient Modeling of Complex Electromagnetic Structures Based on a Novel Algorithm for Spatial Segmentation Using Hexahedral Finite Elements," *Proceedings of 17th Telecommunications forum TELFOR 2009*, November 24-26, 2009, Belgrade, Serbia, pp.835-838 (in Serbian language).

(156) T. Thalmann, Z. Popovic, B. M. Notaros, and J. R. Mosig, "Investigation and Design of a Multi-band Wearable Antenna," *Proceedings of the 3rd European Conference on Antennas and Propagation – Eucap 2009*, 23-27 March 2009, Berlin, Germany.

(157) B. M. Notaros, "25 Years of Progress and Future Challenges in Higher Order Computational Electromagnetics," **invited paper**, Special Session "25 Years of Progress and Future Challenges in Applied Computational Electromagnetics", *Proceedings of the 25th Annual Review of Progress in Applied Computational Electromagnetics – ACES 2009*, March 8-12, 2009, Monterey, California, pp. 377-382.

(158) B. M. Notaros, M. M. Ilic, A. Z. Ilic, M. Djordjevic, and S. V. Savic, "Efficient Higher Order Finite Element–Moment Method Modeling of 3-D Radiation and Scattering Problems," **invited paper**, Special Session "High-Performance Finite Element Analysis in CEM", *Proceedings of the 25th Annual Review of Progress in Applied Computational Electromagnetics – ACES 2009*, March 8-12, 2009, Monterey, California, pp. 627-632.

(159) A. Z. Ilic, S. V. Savic, M. M. Ilic, and B. M. Notaros, "Analysis of Electromagnetic Scatterers Using Hybrid Higher Order FEM-MoM Technique," *Proceedings of the 16th Telecommunications Forum - TELFOR 2008*, November 25-27, 2008, Belgrade, Serbia, pp. 480-483.

(160) M. Djordjevic, M. M. Ilic, and B. M. Notaros, "Modeling Using Higher Order Elements in Numerical Electromagnetics," **invited paper**, *Proceedings of the 16th Telecommunications Forum - TELFOR 2008*, November 25-27, 2008, Belgrade, Serbia, pp. 476-479.

(161) E. Yilmaz, D. P. Kasilingam, and B. M. Notaros, "Performance Analysis of Wearable Microstrip Antennas with Low-Conductivity Materials," *Proceedings of 2008 IEEE Antennas and Propagation Society International Symposium*, July 5-12, 2008, San Diego, CA, U.S.A.

(162) Branislav M. Notaros, Miroslav Djordjevic, and Milan M. Ilic, "Hybrid Higher Order Techniques for CEM Analysis and Design," **invited paper**, Special Session on Emerging Techniques and Applications for Computational Modeling Technologies: Academic and Commercial Aspects and Challenges, *URSI CNC/USNC North American Radio Science Meeting - URSI 2007 Digest*, July 22-26, 2007, Ottawa, ON, Canada.

(163) A. Z. Ilic, M. M. Ilic, and B. M. Notaros, "Influence of the Accuracy of Geometrical Modeling with Large Curvilinear Elements on FEM Solutions to EM Problems," *Proceedings of the 14th Telecommunications Forum - TELFOR 2006*, November 21-23, 2006, Belgrade, Serbia, pp. 422-424.

(164) B. M. Notaros, M. Djordjevic, and Z. Popovic, "Generalized CoCo Antennas," *Proceedings of the 2006 Antenna Applications Symposium*, September 20-22, 2006, Allerton Park, Monticello, IL, U.S.A., pp.240-257.

(165) M. Djordjevic and B. M. Notaros, "Enhanced Higher Order MoM-PO Modeling Using Multiple Reflections in the PO Region," *Proceedings of 2006 IEEE Antennas and Propagation Society International Symposium*, July 9-14, 2006, Albuquerque, NM, U.S.A., pp.2905-2908.

(166) B. M. Notaros, "Higher Order Computational Electromagnetics for Antenna and Microwave Engineering Applications," **invited presentation**, *NSF/ECS Grantees Workshop*, Tuskegee University, Tuskegee, Alabama, U.S.A., June 13-15, 2006.

(167) M. M. Ilic, A. Z. Ilic, and B. M. Notaros, "Large Lagrange-Type Finite Elements in Electromagnetics – Benefits and Limitations," *Proceedings of the 50th ETRAN Conference*, June 6-9, 2006, Belgrade, Serbia, pp.II.262-265.

(168) B. M. Notaros, M. M. Ilic, and A. Z. Ilic, "Higher Order Hierarchical FEM Solutions with Enhanced Efficiency and Practicality," **invited paper**, Special Session on Numerical Methods, *2006 Progress in Electromagnetics Research Symposium - PIERS 2006 - Book of Abstracts*, March 26-29, 2006, Cambridge, MA, U.S.A., p.253.

(169) B. M. Notaros and M. Djordjevic, "Hybrid Numerical-Asymptotic Modeling of Electrically Large EM Structures," **invited paper**, Special Session on Hybrid Numerical Techniques in EM for Modeling Electrically Large Structures, *Proceedings of the 22th Annual Review of Progress in Applied Computational Electromagnetics – ACES 2006 Conference*, March 12-16, 2006, Miami, FL, U.S.A., pp.150-153.

(170) B. M. Notaros, M. M. Ilic, A. Z. Ilic, and M. Djordjevic, "Very-High-Order CEM Modeling," **invited paper**, Special Session on Higher Order Computational Electromagnetics, *Proceedings of 2005 IEEE APS International Symposium*, July 3-8, 2005, Washington, D.C., U.S.A., Vol. 3A, pp.48-51.

(171) M. M. Ilic, D. Olcan, A. Z. Ilic, and B. M. Notaros, "Large-Domain High-Order Curvilinear Finite Element Solution of 2D and 3D Vector-Type Problems in Engineering," **invited paper**, *First*

International Conference on Computational Mechanics - Book of Abstracts, November 15-17, 2004. Belgrade, Serbia and Montenegro, p. 15.

(172) M. Djordjevic and B. M. Notaros, "On the Higher-Order MoM-PO Electromagnetic Modeling of Vehicles," *2004 IEEE APS International Symposium and USNC/URSI Radio Science Meeting*, *URSI Digest*, June 20-26, 2004, Monterey, CA, U.S.A.

(173) A. Z. Ilic, M. M. Ilic, and B. M. Notaros, "On the Higher-Order Hexahedral Meshing for FEM in Electromagnetics," *2004 IEEE APS International Symposium and USNC/URSI Radio Science Meeting*, *URSI Digest*, June 20-26, 2004, Monterey, CA, U.S.A.

(174) B. M. Notaros, M. M. Ilic, and M. Djordjevic, "Higher Order Geometrical Modeling and Higher Order Field/Current Modeling in FEM, MoM, and PO Simulations," **invited paper**, Special Session on Advances in CEM, *Proceedings of the 20th Annual Review of Progress in Applied Computational Electromagnetics – ACES 2004 Conference*, Syracuse, NY, April 19-23, 2004.

(175) D. L. Evans, D. Gray, S. Krause, J. Martin, C. Midkiff, B. M. Notaros, M. Pavelich, D. Rancour, T. Reed-Rhoads, P. Steif, R. Streveler, and K. Wage, "Progress on Concept Inventory Assessment Tools," *Proceedings of the 33rd ASEE/IEEE Frontiers in Education Conference - FIE 2003*, November 5-8, 2003, Boulder, CO, USA, pp.T4G.1-8.

(176) B. M. Notaros, M. Djordjevic, and M. M. Ilic, "Higher Order Electromagnetic Modeling for Wireless Technology Applications," **invited paper**, *NSF Wireless Grantees Workshop, 2003 IEEE AP-S Topical Conference on Wireless Communications Technology (IEEE TCWCT)*, October 15-17, 2003, Honolulu, Hawaii, U.S.A., pp.229-232.

(177) M. Djordjevic and B. M. Notaros, "Higher-Order Large-Domain MoM-PO Solution to EFIE-MFIE," **invited paper**, Special Session on Integral-Equation Methods, *Proceedings of the 2003 Progress in Electromagnetics Research Symposium - PIERS 2003*, Oct. 13-16, 2003, Honolulu, Hawaii, U.S.A., p.140.

(178) M. Djordjevic and B. M. Notaros, "Higher-Order Moment-Method Modeling of Curved Metallic Antennas and Scatterers," *Proceedings of 2003 IEEE Antennas and Propagation Society International Symposium*, Columbus, OH, U.S.A., June 22-27, 2003, Vol. 4, pp.94-97.

(179) D. L. Evans, C. Midkiff, R. Miller, J. Morgan, S. Krause, J. Martin, B. M. Notaros, D. Rancour, and K. Wage, "Tools for Assessing Conceptual Understanding in the Engineering Sciences," panel, *Proceedings of the 32nd ASEE/IEEE Frontiers in Education Conference - FIE 2002*, November 6-9, 2002, Boston, USA, p.F2B-1.

(180) M. Djordjevic and B. M. Notaros, "Three types of higher-order MoM basis functions automatically satisfying current continuity conditions," *Proceedings of 2002 IEEE Antennas and Propagation Society International Symposium*, June 16-21, 2002, San Antonio, TX, U.S.A., Vol. 4, pp.610-613.

(181) M. M. Ilic and B. M. Notaros, "Computation of 3-D electromagnetic cavity resonances using hexahedral vector finite elements with hierarchical polynomial basis functions," *Proceedings of 2002 IEEE Antennas and Propagation Society International Symposium*, June 16-21, 2002, San Antonio, TX, U.S.A., Vol. 4, pp.682-685.

(182) B. M. Notaros, "Concept Inventory Assessment Instruments for Electromagnetics Education," *Proceedings of 2002 IEEE Antennas and Propagation Society International Symposium*, June 16-21, 2002, San Antonio, TX, U.S.A., Vol. 1, pp.684-687.

(183) M. M. Ilic and B. M. Notaros, "Entire-Domain and Large-Domain Finite Element Analysis of 3-D Electromagnetic Cavities," *6th International Workshop on Finite Elements for Microwave Engineering, Antennas, Circuits and Devices - Book of Abstracts*, May 30 - June 1, 2002, Chios, Greece, p.30.

(184) B. M. Notaros, B. D. Popovic, M. Djordjevic, and M. M. Ilic, "Hierarchical and interpolatory higher-order vector basis functions for finite element method and method of moments," *6th International Workshop on Finite Elements for Microwave Engineering, Antennas, Circuits and Devices - Book of Abstracts*, May 30 - June 1, 2002, Chios, Greece, p.65.

(185) M. M. Ilic and B. M. Notaros, "Trilinear hexahedral finite elements with higher-order polynomial field expansions for hybrid SIE/FE large-domain electromagnetic modeling," *Proceedings of 2001 IEEE Antennas and Propagation Society International Symposium*, July 8-13, 2001, Boston, MA, U.S.A., Vol. 3, pp.192-195.

(186) B. M. Notaros, C. D. McCarrick, and D. P. Kasilingam, "Two numerical techniques for analysis of pyramidal horn antennas with continuous metallic ridges," *Proceedings of 2001 IEEE Antennas and Propagation Society International Symposium*, July 8-13, 2001, Boston, MA, U.S.A., Vol. 2, pp.560-563.

(187) M. Djordjevic and B. M. Notaros, "Highly efficient large-domain moment-method analysis and CAD of radio-frequency antennas mounted on or situated in vehicles," *Proceedings of Fall 2000 IEEE Vehicular Technology Conference (VTC2000)*, September 24-28, 2000, Boston, MA, U.S.A., pp.2373-2377.

(188) J. P. Weem, Z. Popovic, and B. M. Notaros, "Vivaldi antenna arrays for SKA," *Proceedings of 2000 IEEE Antennas and Propagation Society International Symposium*, Special Session on Radio Astronomy Square Kilometer Array (SKA), July 16-21, 2000, Salt Lake City, UT, U.S.A., Vol. 1, pp.174-177.

(189) B. M. Notaros, "Higher-order integral-equation computational techniques for electromagnetic radiation and scattering," *Proceedings of the 2000 Progress in Electromagnetics Research Symposium - PIERS 2000*, July 5-14, 2000, Cambridge, MA, U.S.A., p.139.

(190) B. M. Notaros, "Surface integral equation modeling approach to the handset antenna and human body interaction," *Proceedings of 2000 IEEE MTT-S International Microwave Symposium*, June 11-16, 2000, Boston, MA, U.S.A., pp.1929-1932.

(191) B. M. Notaros and B. D. Popovic, "Comparison of large-domain and small-domain MOM in the EM analysis of wires, surfaces, and bodies," *Proc. 26th URSI General Assembly*, August 1999, Toronto, Ontario, Canada, p.150.

(192) B. M. Notaros, B. D. Popovic, and Z. Popovic, "Possibilities of VIE and SIE formulation in the large-domain MOM analysis of metallic/dielectric antennas and scatterers," *Proc. 26th URSI General Assembly*, August 1999, Toronto, Ontario, Canada, p.181.

(193) B. D. Popovic, B. M. Notaros, and Z. Popovic, "Supergain antennas: a novel philosophy of synthesis and design," *Proc. 26th URSI General Assembly*, August 1999, Toronto, Ontario, Canada, p.675.

(194) B. D. Popovic, B. M. Notaros, D. O'Conner, E. Kuester, and Z. Popovic, "A new class of small unconventional antenna reflectors," *Proc. 26th URSI General Assembly*, August 1999, Toronto, Ontario, Canada, p.136.

(195) B. M. Notaros, M. Lj. Djordjevic, B. D. Popovic, and Z. Popovic, "Rigorous EM Modeling of Cars and Airplanes," *Proceedings of the 1999 IEEE Radio and Wireless Conference - RAWCON'99*, August 1999, Denver, CO, U.S.A., pp.167-170.

(196) B. M. Notaros, B. D. Popovic, and Z. Popovic, "EM Simulations for Radio and Wireless on a PC," *Proceedings of the 1999 IEEE Radio and Wireless Conference - RAWCON'99*, August 1999, Denver, CO, U.S.A., pp.175-178.

(197) B. M. Notaros, B. D. Popovic, R. A. Brown, and Z. Popovic, "Large-domain MOM solution of complex electromagnetic problems," *Proceedings of 1999 IEEE MTT-S International Microwave Symposium*, June 1999, Anaheim, CA, U.S.A., pp.1665-1668.

(198) J. P. Weem, B. M. Notaros, and Z. Popovic, "Broadband Element Array Considerations for SKA," *Conf. Proc. Perspectives on Radio Astronomy: Technologies for Large Antenna Arrays* (Editors: A. B. Smolders and M. P. van Haarlem), April 12-14, 1999, Dwingeloo, The Netherlands, pp.59-67.

(199) B. M. Notaros and B. D. Popovic, "Analysis of antennas and scatterers by the method of moments: volume/surface integral-equation formulation," *Proc. 42nd Yugoslav ETRAN Conf.*, Vrnjacka Banja, Yugoslavia, June 1998 (in Serbian language).

(200) B. M. Notaros and B. D. Popovic, "Near field of antennas in the presence of dielectric bodies," *Proc. EMC Conf.*, Belgrade, Yugoslavia, June 1997, pp.3.1-6 (in Serbian language).

(201) B. D. Popovic and B. M. Notaros, "Two-wire-line colinear (TWILCO) antennas," *Proc. 40th Yugoslav ETRAN Conf.*, Budva, Yugoslavia, June 1996, pp.II-AP.363-366.

(202) B. M. Notaros and B. D. Popovic, "Accurate and efficient entire-domain MOM analysis of 3D dielectric scatterers," *Proc. 40th Yugoslav ETRAN Conf.*, Budva, Yugoslavia, June 1996, pp.II-AP.389-392.

(203) B. M. Notaros and B. D. Popovic, "Electromagnetic scattering by arbitrary dielectric bodies," *Proc. Trans Black Sea Region Symposium on Applied Electromagnetism*, Metsovo, Epirus, Greece, 17-19 April 1996, p.FSTE-6.

(204) B. D. Popovic and B. M. Notaros, "New class of wire antennas with approximately cophasal current distribution," *Proc. Trans Black Sea Region Symposium on Applied Electromagnetism*, Metsovo, Epirus, Greece, 17-19 April 1996, p.ANPR-14.

(205) B. D. Popovic, B. M. Notaros, V. V. Petrovic, and D. Z. Djurdjevic, "Analysis of wire antennas near lossy dielectric bodies" (invited review paper), *Proc. 1995 TELSIKS Conf.*, Nis, Yugoslavia, October 1995.

(206) B. M. Notaros and B. D. Popovic, "Analysis of wire metallic antennas and scatterers in the presence of inhomogeneous imperfect dielectric bodies," *Proc. 39th Yugoslav ETRAN Conf.*, Zlatibor, Yugoslavia, June 1995, pp.II-AP.259-262 (in Serbian language).

(207) B. M. Notaros, B. D. Popovic, and B. M. Kolundzija, "Electromagnetic modelling of inhomogeneous dielectric bodies by trilinear hexahedrons," *Proc. 38th Yugoslav ETRAN Conf.*, Nis, Yugoslavia, June 1994, pp.II-AP.119-120 (in Serbian language).

(208) B. M. Notaros and B. D. Popovic, "Analysis of dielectric scatterers by using the polynomial approximation of volume current distribution," *Proc. 37th Yugoslav ETAN Conf.*, Belgrade, Yugoslavia, September 1993, pp.VI-AP.51-56 (in Serbian language).

(209) B. M. Notaros and B. D. Popovic, "Analysis of two-dimensional electrostatic fields by the PPP-method," *Proc. 36th Yugoslav ETAN Conf.*, Kopaonik, Yugoslavia, September 1992, pp.VI-VII.271-278 (in Serbian language).

(210) B. D. Popovic and B. M. Notaros, "The PPP-method for analysis of electromagnetic fields in the presence of dielectric bodies," *Proc. 7th ICAP*, York, United Kingdom, April 1991, (IEE Conf. Publ. No. 333), pp.946-949.

OTHER PUBLICATIONS

(1) J. Corrado, J. J. Harmon, and B. M. Notaros, "An Adaptive Anisotropic hp-Refinement Algorithm for the 2D Maxwell Eigenvalue Problem," *TechRxiv*, April 2022, doi: 10.36227/techrxiv.19636770.v1.

(2) J. Corrado, J. J. Harmon, M. M. Ilic, and B. M. Notaros, "FEM_2D: A Rust Package for 2D Finite Element Method Computations with Extensive Support for *hp*-refinement," *TechRxiv*, February 2022, doi: 10.36227/techrxiv.19166339.v1.

(3) J. Corrado, J. J. Harmon, and B. M. Notaros, "A Refinement-by-Superposition Approach to Fully Anisotropic hp-Refinement for Improved Efficiency in CEM," *TechRxiv*, October 2021, doi: 10.36227/techrxiv.16695163.v1.

(4) J. J. Harmon, J. Corrado, and B. M. Notaros, "A Refinement-by-Superposition hp-Method for H(curl)- and H(div)-Conforming Discretizations," *TechRxiv*, June 2021, doi: 10.36227/techrxiv.14807895.v1.

(5) B. M. Notaros, "Report on the 2022 IEEE International Symposium on Antennas and Propagation and USNC–URSI Radio Science Meeting," *IEEE Antennas and Propagation Magazine*, Vol. 64, No. 5, October 2022, pp. 79–83.

(6) B. M. Notaros, "Introduction to the Special Issue on Finite Elements for Microwave Engineering," Special Issue on Finite Elements for Microwave Engineering, *Electromagnetics*, Vol. 34, Issue 3-4, April 2014, pp. 141-142.

(7) B. M. Notaros, "Report on FEM2012," *IEEE Antennas and Propagation Magazine*, Vol. 55, No. 2, April 2013, pp. 204-211.

PATENTS

(1) B. M. Notaros, M. M. Ilic, A. Tonyushkin, N. J. Sekeljić, and P. Athalye, "Subject-Loaded Helical-Antenna Radio-Frequency Coil for Magnetic Resonance Imaging," United States Patent, November 12, 2019, Patent Number 10,473,736.

(2) B. Notaros and M. Ilic, "Slotted Waveguide Array RF Coil for Magnetic Resonance Systems," United States Patent, US 2020/0292647 A1, United States Patent and Trademark Office (USPTO), granted April 26, 2022.

SELECTED RECENT INVITED SEMINARS AND LECTURES

(1) B. M. Notaros, "Higher Order Computational Electromagnetics, Uncertainty Quantification, and Meshing Techniques with Applications in Wireless Communication, Medicine, and Meteorology," **Keynote Talk,** *2021 International Applied Computational Electromagnetics Society (ACES-China) Symposium*, Chengdu, China, hybrid conference, July 29, 2021. http://www.em-conf.com/aces-china-2021/downloads/ACES-CHINA-2021-TECHNICAL-PROGRAM-20210724-V3.pdf

(2) B. M. Notaros, "Higher Order Computational Electromagnetics, Uncertainty Quantification, and Meshing Techniques with Applications in Wireless Communication, Medicine, and Meteorology,"

Plenary Talk, *14th International Conference on Advanced Technologies, Systems and Services in Telecommunications – TELSIKS 2019*, Nis, Serbia, October 23, 2019. https://www.telsiks.org.rs/invited-keynote-speakers/

(3) B. M. Notaros, "Electromagnetics Education: State of the Art, Assessment of Challenges, and Moving Forward," **Plenary Talk**, *2019 International Applied Computational Electromagnetics Society Symposium – ACES2019*, Miami, Florida, April 16, 2019. http://aces-society.org/conference/Miami_2019/Notaros_abstract.pdf

(4) B. M. Notaros, "Electromagnetics Education and Its Future and Challenges," **Semi-Plenary Talk**, *13th European Conference on Antennas and Propagation – EuCAP2019*, 2 April 2019, Krakow, Poland. https://www.eucap2019.org/conference/keynote-and-invited-speakers-list/prof-branislav

(5) B. M. Notaros, "Higher Order Computational Electromagnetics, Uncertainty Quantification, and Meshing Techniques with Applications in Wireless Communication, Medicine, and Meteorology," **Invited Seminar and PhD Course**, 1-credit course, *PhD Program in Information Engineering, University of Florence*, Florence, Italy, November 14, 2019. https://informationengineering.dinfo.unifi.it/courses/

(6) B. M. Notaros, "Higher Order Computational Electromagnetics, Uncertainty Quantification, and Meshing Techniques with Applications in Wireless Communication, Medicine, and Meteorology," **Invited Seminar**, Politecnico di Torino, Turin, Italy, November 18, 2019.

(7) B. M. Notaros, "Higher Order Computational Electromagnetics, Uncertainty Quantification, and Meshing Techniques with Applications in Wireless Communication, Medicine, and Meteorology," **Invited Seminar**, School of Electrical Engineering, University of Belgrade, Belgrade, Serbia, November 6, 2019.

(8) B. M. Notaros, "Higher Order Computational Electromagnetics and Its Applications," **Invited Seminar**, Dep. Teoría de la Señal y Comunicaciones, Universidad Carlos III de Madrid, Madrid, Spain, September 16, 2019.

(9) B. M. Notaros, "Higher Order Computational Electromagnetics and Its Applications in RF Design, MRI, and Meteorology," IEEE Joint Microwave Theory and Techniques Society/Antennas and Propagation Society/Geoscience and Remote Sensing Society Chapter Denver Section Fall Meeting, sponsored by Lockheed Martin, September 27, 2017, Boulder, Colorado.

(10) B. M. Notaros, "Microphysical Characteristics Analysis of Heavy Snowfall Events from MASCRAD Campaigns and Potential Relation to ICE-POP 2018," 2nd ICE-POP 2018 (International Collaborative Experiments for Pyeongchang 2018 Olympic & Paralympic Winter Games) Workshop, 8-11 November, 2016, Seoul, Korea.

(11) B. M. Notaros, "Accurate Characterization of Atmospheric Precipitation Based on Advanced Surface and Dual-Polarized Radar Observations," 2016 KNU CARE Mini Conference on Radar Meteorology, November 7, 2016, Center for Atmospheric REmote sensing (CARE), Kyungpook National University (KNU), Daegu, Korea.

(12) B. M. Notaros, "MASCRAD Events: Observations and Analyses of Cases with Contrasting Hydrometeor Forms", 2016 KNU CARE Mini Conference on Radar Meteorology, November 7, 2016, Daegu, Korea.

(13) B. M. Notaros, "Faculty Spotlight" research presentation, ECE Industry Advisory Board Meeting, Colorado State University, October 28, 2016, Fort Collins, CO.

(14) B. M. Notaros, "Advanced Observations for Microphysics Scheme Evaluation, Using GCPEx Data and Beyond," NASA PMM Science Team Meeting Oral Presentation, October 24-26, 2016, Houston, TX.

(15) B. M. Notaros, "Characterization of Atmospheric Precipitation within 2014-2016 Snow and Rain Observation Campaigns in Greeley, Colorado, USA", Seminar, Kyungpook National University, 27 March 2016, Daegu, Korea.

(16) B. M. Notaros, "Analysis of Microphysical Properties of Winter Precipitation Based on Observations by Multi-Angle Snowflake Camera", Site Survey and Observation Group Workshop for International Collaborative Experiments for Pyeongchang 2018 Olympic & Paralympic Winter Games, ICE-POP 2018, March 21-25, 2016, Pyeong-Chang, Korea.

PERSONAL

http://www.engr.colostate.edu/~notaros/Personal/personal.htm

- **Notaros Family:**
  - *Olivera Notaros*, Senior Instructor and Head of Senior Design, Dept. of Electrical and Computer Engr., Colorado State University, https://www.engr.colostate.edu/ece/people/olivera-notaros/
  - *Jelena Notaros*, Assistant Professor, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, http://www.mit.edu/~notaros/
  - *Milica Notaros*, Ph.D. Graduate Student, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology

- Plays accordion, sang in a professional choir

- Loves nature, outdoors, animals, pet farming, horses, National Parks, boating, camping, hiking, swimming, snorkeling, skiing, travel, driving, carpentry, landscaping, gardening, stonework, history, geography, geology.