

CURRICULUM VITAE

Branislav M. Notaros

Professor and University Distinguished Teaching Scholar

Director of Electromagnetics Laboratory

Department of Electrical and Computer Engineering

Colorado State University

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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.
- **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.
- **2010 College of Engineering George T. Abell Outstanding Teaching and Service Faculty Award**, Colorado State University.
- **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, 2022, \$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, 2021, \$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 (R²E² – 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 Zaghoul).
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) general surface meshing in CEM using iterative adaptive refinement;
- (e) advanced ray tracing techniques for indoor and outdoor propagation modeling;
- (f) 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;
- (g) 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 ($B_0 \geq 3T$);
- (h) direct electromagnetic coupling (DEC) system for human orthopaedic fracture-healing diagnostics;
- (i) telemedicine system for orthopaedic patient self-testing and data transmission;

- (j) advanced comprehensive analysis of rain drop shapes, oscillation modes, and fall velocities using high-resolution surface disdrometers, polarimetric radar, and numerical models;
- (k) fast scalable higher order direct algorithms for large and complex problems in computational sciences and engineering;
- (l) hierarchical matrix methods for extreme-scale parallel computation on leading-edge high performance computing (HPC) platforms;
- (m) 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;
- (n) modeling and measurements of EM propagation in underground mines and enabling smart underground mining with an integrated context-aware wireless cyber-physical framework;
- (o) development of the optical/electronic/laser-sensing/image-processing Snowflake Measurement and Analysis System (SMAS);
- (p) RF/microwave applicator system development for biomedical applications;
- (q) characterization of rotating wind turbine signatures;
- (r) development of antennas for biomedical applications;
- (s) 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>

- **30 years of teaching experience as faculty member** (23 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, and Fall 2020;
 - ECE 342, Electromagnetic Fields & Devices II, Spring 2011, Spring 2012, Spring 2015, Spring 2016, Spring 2019, and Spring 2020;
 - 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, and Fall 2020;
 - New course: ECE 540 Computational Electromagnetics, Spring 2012, Spring 2016, Spring 2017, and Spring 2019.
 - New course: ECE 541 Applied Electromagnetics, Fall 2017 and Fall 2020.
 - Senior design projects “CSU Antenna Test Range”, AYs 2008/09, 2009/10, 2010/11, 2011/12, 2012/13, 2013/14; “Antenna Design”, AY 2011/12; “Geometry Processing for Computational Electromagnetics”, AY 2012/13; “Magnetics: Experimental Investigation of Magnetic Materials and Devices”, AY 2014/15; “Finite element electromagnetic modeling”, AY 2014/15; “HexArray: Antenna Array for Wi-Fi Mesh and Robotics”, AY 2014/15; “Snowflake Sensing System (SSS)”, AY 2015/16; “RF Design for Next-Generation MRI Scanners”, AY 2015/16; “Ram the Snow Cam: Winter Weather Observation and Processing System”, AY 2016/17; “Electromagnetic Measurements in Medical Applications”, AY 2016/17; “Semi-Automated Precipitation Gauge”, AY 2016/17; “Next Generation RF MRI Scanners”, AY 2017/18 and AY 2019/20; “3D Snowflake Camera & Snowflake Sensing System”, AY 2017/18, AY 2018/19, and AY 2019/20; “CSU Antenna Test Range – ATR”, AY 2017/18, AY 2018/19, and AY 2019/20; “Wireless Signal Characterization of Underground Mines”, AY 2017/18, AY 2018/19, and AY 2019/20.
 - 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, and Fall 2020.
- 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:
 - EF10E, 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).
- **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: Pranav Athalye (Ph.D.), Jake Harmon (Ph.D.), Stephen Kasdorf (Ph.D.), Jeremiah Corrado (PhD).

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>

- **21 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.
- Other research undergraduate students supported by NSF grants (at CSU):
 - Junjiang Lin, Ce Guo, Andres Solorzano Solis, Bryan Johnson.
- **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**.

- 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**.
- 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**.
- 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**.

Links to all senior design project websites can be found at

<http://www.engr.colostate.edu/~notaros/teaching/teaching.htm#CSUSeniorDesign>

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.

PROFESSIONAL SOCIETY LEADERSHIP, MEMBERSHIPS

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

- 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–).
- Member of the *IEEE Antennas and Propagation Society Administrative Committee* (2021–).
- 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, REVIEWER, NSF PANELIST, 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 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 *2020 IEEE International Symposium on Antennas and Propagation and USNC-URSI National 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 National 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 National 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 National 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 National 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.

CONFERENCE GENERAL CHAIR, CONFERENCE SESSION ORGANIZER AND CHAIR

<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 National Radio Science Meeting – APS/URSI 2022*, July 10-15, 2022, Denver, Colorado.

We have completed and finalized the hotel contracts for the APS/URSI 2022 Denver conference, which are now fully executed and signed by the IEEE and Hyatt. Among other good things in the contracts, the conference space and meeting rooms in the Hyatt Regency Denver are really good, clustered all together and looking rather spectacular, the dates are optimal (July 10-15,

2022), and the guest room group rate of \$219 (3.5 years from signing) is a good deal. We have also finalized the meeting management company contract, and it is now fully executed and signed by the IEEE and CMS. So the things for Denver conference look really good, and our 2022 edition promises to be a memorable event and great success. It is exciting to have our conference in Denver, first time ever, and back to Colorado after 50 years.

- (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.
- (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
- (6) 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).
- (7) 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).
- (8) 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).
- (9) 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.
- (10) 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.
- (11) 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.
- (12) 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.
- (13) 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.
- (14) 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.

- (15) 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.
- (16) 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.
- (17) 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.
- (18) 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.
- (19) 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.
- (20) 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.
- (21) 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.
- (22) 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 National Radio Science Meeting*, July 10, 2006, Albuquerque, NM (AP special session).
- (23) 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.
- (24) Organizer and Chair of the Special Session “Higher Order Computational Electromagnetics” of the *2005 IEEE APS International Symposium and USNC/URSI National Radio Science Meeting*, July 7, 2005, Washington, D.C. (joint AP/URSI B special session).
- (25) Chair of Session “Antenna Theory, Design, and Measurements,” *2021 USNC-URSI National Radio Science Meeting*, January 6, 2021, Boulder, Colorado, Online Conference.
- (26) Chair of Session “Numerical Methods,” *2021 USNC-URSI National Radio Science Meeting*, January 6, 2021, Boulder, Colorado, Online Conference.
- (27) Chair of Session “Finite Element Methods,” *2019 IEEE International Symposium on Antennas and Propagation*, July 9, 2019, Atlanta, Georgia.
- (28) Chair of Session “Computational Electromagnetics II,” *2019 IEEE International Symposium on Antennas and Propagation*, July 12, 2019, Atlanta, Georgia.
- (29) Co-chair of Special Session “Advances in Curved Patch Modeling,” *2019 International Applied Computational Electromagnetics Society (ACES) Symposium – ACES2019*, April 15, 2019, Miami, Florida.

- (30) Chair of Session “Numerical Methods,” *2019 USNC-URSI National Radio Science Meeting*, January 10, 2019, Boulder, Colorado.
- (31) Chair of Session “Analytical and Theoretical Electromagnetics,” *2019 USNC-URSI National Radio Science Meeting*, January 11, 2019, Boulder, Colorado.
- (32) 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.
- (33) Chair of Session “Sensor Network and Cognitive Radio,” *2018 USNC-URSI National Radio Science Meeting* (Joint with IEEE AP-S Symposium), July 12, 2018, Boston, MA, USA.
- (34) Chair of Session “Imaging and Monitoring in Medical Applications,” *2018 USNC-URSI National Radio Science Meeting*, January 5, 2018, Boulder, Colorado.
- (35) Chair of Session “Numerical Methods,” *2018 USNC-URSI National Radio Science Meeting*, January 6, 2018, Boulder, Colorado.
- (36) Chair of Session “Integral Equation Applications,” *2017 IEEE International Symposium on Antennas and Propagation*, July 10, 2017, San Diego, California.
- (37) Chair of Session “Fast Direct and Iterative Integral-Equation Solvers,” *2016 IEEE International Symposium on Antennas and Propagation*, June 29, 2016, Fajardo, Puerto Rico.
- (38) 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.
- (39) Chair of Session “Electromagnetic Imaging and Sensing,” *2016 USNC-URSI National Radio Science Meeting* (Joint with IEEE AP-S Symposium), June 30, 2016, Fajardo, Puerto Rico.
- (40) Chair of Session “Numerical Methods,” *2016 USNC-URSI National Radio Science Meeting*, January 6, 2016, Boulder, Colorado.
- (41) 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.
- (42) 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.
- (43) 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.
- (44) 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.
- (45) 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.
- (46) Chair of Session “Accelerated Computing Methods for Numerical Electromagnetics I,” *2014 IEEE Antennas and Propagation Society International Symposium*, July 10, 2014, Memphis, Tennessee.
- (47) Chair of Session “Accelerated Computing Methods for Numerical Electromagnetics II,” *2014 IEEE Antennas and Propagation Society International Symposium*, July 10, 2014, Memphis, Tennessee.
- (48) Chair of Session “Numerical Methods,” *2014 USNC-URSI National Radio Science Meeting*, January 10, 2014, Boulder, Colorado.

- (49) Chair of Session “Scattering, Diffraction, and RCS II,” *2013 IEEE Antennas and Propagation Society International Symposium*, July 8, 2013, Orlando, Florida.
- (50) Chair of Session “Finite Element Domain Decomposition Methods,” *2013 IEEE Antennas and Propagation Society International Symposium*, July 12, 2013, Orlando, Florida.
- (51) Chair of Session “Numerical Methods,” *2013 USNC-URSI National Radio Science Meeting*, January 10, 2013, Boulder, Colorado.
- (52) Chair of Session “Advances in Integral Equation Methods,” *2012 IEEE Antennas and Propagation Society International Symposium*, July 10, 2012, Chicago, Illinois.
- (53) Chair of Session “Applications of Numerical Methods,” *2012 IEEE Antennas and Propagation Society International Symposium*, July 9, 2012, Chicago, Illinois.
- (54) Chair of Session “Numerical Methods,” *2012 USNC-URSI National Radio Science Meeting*, January 6, 2012, Boulder, Colorado.
- (55) Member of the Host Committee of the *2005 AMTA (Antenna Measurement Techniques Association) Symposium*, October 30 – November 4, 2005, Newport, Rhode Island.
- (56) 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.
- (57) Chair for the Session “Electromagnetics Education” of the *2002 IEEE Antennas and Propagation Society International Symposium*, June 17, 2002, San Antonio, Texas.
- (58) 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, and 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).

U.S. RESIDENCY/CITIZENSHIP STATUS

- U.S. citizen (since 2008).

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).

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

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- (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 strategies*, S. Krishnasamy and K. Warnick (eds.), CRC Press, Taylor and Francis, LLC, 2021, In Print.
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- (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.
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- (5) 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.
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