**George S. Dulikravich, Ph.D.**
Fellow AAM, Fellow ASME, Fellow RAeS, Associate Fellow AIAA
Retired Professor of Aerospace, Mechanical and Materials Engineering (U.S. citizen)
Contact address: 16169 Parque Lane, Naples, Florida 34110
gdulikravich@gmail.com http://gsd-systems.com

I am a recently retired Full Professor from the Department of Mechanical and Materials Engineering, College of Engineering and Computing, Florida International University (FIU). I have a diverse educational background in mechanical and aerospace engineering and applied mathematics including private (Ph.D.-Cornell'79), public (M.Sc.-Minnesota'75) and international (Dipl.Ing.-Belgrade'73) schooling, three years of visiting research and teaching experience both domestic (NASA-GRC) and international (DFVLR-Goettingen), 41 years of teaching and research experience at four universities (UT-Austin, Penn State, UT-Arlington, FIU). I have held positions of Graduate Program Director (UTA), Founder and Institute Director (UTA), Founder and Lab Director (FIU), and Department Chair (FIU during 2003-2009).

My research expertise and interests are computational, analytical, and highly multi-disciplinary spanning the fields of aerospace, mechanical, industrial, materials, electrical, biomedical and chemical engineering and physics, chemistry and applied mathematics. Select research topics include the development of a variety of inverse problems algorithms; multi-objective hybrid constrained evolutionary design optimization algorithms; acceleration of iterative algorithms; turbomachinery aero-thermodynamics and heat transfer; conjugate heat transfer analysis; optimized topology of branching 3D micro-channels for high heat flux electronics and gas turbine blade cooling; brain cooling of stroked patients; optimized cooling of human hearts for extended transportation; optimally controlled melting/solidification using electric, magnetic and thermal fields; multi-objective optimization and inverse design of chemical compositions of nickel superalloys, titanium alloys, aluminum and scandium alloys, hafnium metallic glasses and high strength-high temperature magnetic alloys using ML/AI; thermo-elasticity analysis and inverse problems; aerodynamic optimization of kinetic energy projectiles for maximum penetration; inverse design and optimization of transonic and hypersonic flight vehicle shapes; aerodynamic shape design of multi-element winglets; minimization of sonic boom from supersonic passenger airplanes; inverse determination of spatially varying diffusion coefficients; reduced order modeling for multiphase flows; and constrained design optimization of chemical formulas for functional molecules. This multi-disciplinary research has resulted in over 530 technical publications, including 17 books/proceedings volumes, 17 book chapters, and 155 journal papers with emphasis on multi-disciplinary computational analysis, inverse problems and design optimization. Google Scholar scores are: 7798 citations; h-index is 45; i10-index is 214. I am CUI/ITAR certified.

I am the founder and served as Editor-in-Chief of the international journal on *Inverse Problems in Science and Engineering* (1994-2021). Currently, I am an Associate Editor of eight professional journals and the founder and editor of the sequence of International Conferences on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES) and a co-founder of Inverse Problems, Design and Optimization (IPDO) sequence of international symposia. I co-organized over 220 technical meetings, supervised and mentored 20 PhD and 31 MSc students, 30 visiting scientists and postdoctoral fellows, and have presented 33 plenary, keynote and invited lectures at national and international meetings. I am a Fellow of American Academy of Mechanics, American Society of Mechanical Engineers, Royal Aeronautical Society and an Associate Fellow of American Institute of Aeronautics and Astronautics.
My research has been funded by NSF, NASA, AFOSR, ARO, ONR, DoD, DoE, NETL, ALCOA, LLNL, Lockheed Martin Skunk Works, GE, Medtronics, Millipore, CRDF, HPTi, Bell Helicopters, NAVAIR, Touchstone Research Laboratories, TKelvin, DARPA, CNPq, ORNL and UCAH.

## TABLE OF CONTENTS

## 1. EDUCATION AND EXPERIENCE

**Education**

1979 Ph.D., Aerospace Engineering and Applied Mathematics, Cornell University, Ithaca, NY
1975 M.Sc., Aeronautical Engineering and Theoretical Mechanics, University of Minnesota, Minneapolis, MN
1973 Dipl. Ing., Aeronautical and Mechanical Engineering, University of Belgrade, Belgrade, Yugoslavia
1968 Dipl. Mech. Tech., Mechanical and Industrial Engineering, Technical High School "Nikola Tesla", Pancevo, Yugoslavia

**Academic and Professional Experience**

2003 - 2023 Professor, Department of Mechanical and Materials Engineering, Florida International University (FIU), Miami, Florida, USA
2013 Senior Visiting/Exchange Scholar, CNPq Science Without Borders, UFRJ/COPPE, Rio de Janeiro, Brazil
2012 – 2013 Visiting Professor, School of Engineering, Cranfield University, UK
2003 – 2009 Professor and Chairman, Department of Mechanical and Materials Engineering, FIU
2004 - 2023 Founder and Director, Multidisciplinary Analysis, Inverse Design, Robust Optimization and Control (MAIDROC) Laboratory, FIU
2002 – 2003 Founder and Director, Multidisciplinary Analysis, Inverse Design and Optimization (MAIDO) Institute, University of Texas at Arlington
2002 – 2003 Graduate Student Advisor, Aerospace Program, Department of Mechanical and Aerospace Engineering, University of Texas at Arlington
1999 – 2003 Professor, Department of Mechanical and Aerospace Engineering, University of Texas at Arlington
1999 – 2000 Adjunct Professor, Department of Aerospace Engineering, Pennsylvania State University
1996 Visiting Professor, Institute of Mathematics, University of Novi Sad, Yugoslavia
1995 Visiting Professor, Teikyo Founder's Fellowship, School of Science and Technology, Teikyo University, Utsunomiya, Japan
1986 – 1999 Associate Professor, Department of Aerospace Engineering, The Pennsylvania State University, University Park, PA
1987 – 1988 Senior Visiting Research Scientist, ICOMP-NASA Lewis Research Center/Case Western Reserve University, Cleveland, OH
1982 – 1986 Assistant Professor, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin
1982 – 1984 Visiting Research Scientist, DFVLR-AVA - Institut fuer Theoretische Stroemungsmechanik, Goettingen, Germany
1980 – 1982 Visiting Research Scientist, Universities Space Research Association/NASA Lewis Research Center, Cleveland, OH
1979 – 1980 Research Associate, NSF-National Research Council/NASA Lewis Research Center, Cleveland, OH

**Summary of Teaching, Advising and Mentorship Records**

Taught 15 undergraduate and 18 graduate courses in mechanical and aerospace engineering and engineering mechanics.
Taught 14 workshop courses and industry short courses.

Mentored 30 post-doctoral and visiting scientists, 20 PhD students, 31 MSc students, 3 BSc honors students, 109 BSc students with research reports, and 3 high-school interns.

**Summary of Research and Scholarly Work Records**

Funding: $6.425M cumulative funding
17 books/proceedings, 17 book chapters, 155 journal papers, 333 conference papers,16 reports, 13 book reviews, 1 book contract, 1 journal paper under review, 515 presentations, 33 plenary, keynote and invited lectures at conferences

Citations: Google Scholar: citations 7798 h-index all: 45 i10-index all: 214

**Membership in Professional Societies**

| | |
|---|---|
| Fellow | AAM - American Academy of Mechanics (Member since 1985; FAAM since Nov. 2006) |
| Fellow | ASME - American Society of Mechanical Engineers (ASME member no. 318923 since 1978; FASME since Nov. 1997) |
| Fellow | RAeS - Royal Aeronautical Society (FRAeS no. 1375449 since July 2009) |
| Associate Fellow | AIAA - American Institute of Aeronautics and Astronautics (AIAA member no. 4512 since 1974; Associate FAIAA since June 1994) |
| Member | TMS - Minerals, Metals & Materials Society (TMS no. 436471 since 2014) |
| Member | ASM - The Materials Information Society (ASM no. 527156 since 2006) |
| Member | HYDROMAG - International Association for Hydromagnetic Phenomena and Applications (since 2005) |

**Honors and Awards**

| | |
|---|---|
| 2022 - 2024 | Listed within the top 2% researchers in the world, as per Stanford University (https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/7) |
| 2018 | Elected Member, Scientific Council of the International Centre for Heat and Mass Transfer (ICHMT) |
| 2016 | Advisor, ASME Electronic and Photonic Packaging Division Student Member of the year 2016 award winner |
| 2015 | Advisor, ASME IMECE2015 Young Engineer Paper (YEP) student international competition winner |
| 2015 | Advisor, ASME Innovative Design Simulation Challenge graduate student international competition winner |
| 2014 | Advisor, ASME Innovative Design Simulation Challenge undergraduate student international competition winner |
| 2006 | Eminent Engineer Award, Tau Beta Pi National Engineers' Honor Society |
| 2001 | Eli Carafoli Award & Commemorative Medal, Politechnica, Bucharest, Romania |
| 1996 – 1998 | ALCOA Foundation Faculty Research Fellow Award |
| 1985 – 1986 | William J. Murray, Fellowship in Engineering #1, University of Texas at Austin |
| 1979 | NASA/National Research Council Postdoc. Res. Associateship & Travel Grant |
| 1979 | Sigma Xi - The Scientific Research Honor Society of North America |
| 1975 | Sigma Gamma Tau - National Honor Society for Aerospace Engineers |
| 1974 | International Institute for Education (IIE) Fulbright Travel Grant |

**Journal Editorships and Editorial Boards**

| | |
|---|---|
| *1994 - 2021* | *Inverse Problems in Science and Engineering* (Founder and Editor-in-Chief) https://www.tandfonline.com/toc/gipe20/current |
| *1996 - 2014* | *Novi Sad Journal of Mathematics* |

(Associate Editor)
http://www.emis.de/journals/NSJOM/

*2000 – 2003* *International Journal of Nonlinear Modelling in Science and Engineering*
(Associate Editor)

*2001 – 2004* *ASME Journal of Heat Transfer*
(Associate Technical Editor)

*2006 - 2020* *International Journal of Computational and Applied Mathematics*
(Member of Associate Editors' Board)
http://www.springer.com/mathematics/applications/journal/40314?

*2007 - 2018* *Emirates Journal for Engineering Research*
(Member of International Advisory Board)
https://scholarworks.uaeu.ac.ae/ejer/

*2008 - present* *FME Transactions*
(Associate Editor)
https://www.mas.bg.ac.rs/_media/istrazivanje/fme/editorial_board.pdf

*2009 - present* *International Journal of Mathematical Modelling and Numerical Optimisation*
(Member of Honorary Advisory Board)
https://www.inderscience.com/jhome.php?jcode=ijmmno

*2010 - 2015* *International Journal of Nano Science and Engineering*
(Member of Editorial Board)
http://iasks.org/journals/ijnse

*2012 - present* *International Journal of Mechanics and Materials in Design*
(Member of Editorial Board)
http://link.springer.com/journal/10999/editorial-board

*2012 - 2018* *International Journal of Engineering Mathematics*
(Member of Editorial Board)
http://www.hindawi.com/journals/ijem/

*2012 - 2015* *Advances in Nano Research*
(Member of Editorial Board)
http://www.techno-press.org/?journal=anr&subpage=7#

2013 - present *INCAS Bulletin*
(Member of Editorial Board)
http://bulletin.incas.ro/index.html

2014 - 2023 *Mathematical Problems in Engineering*
(Academic Editor)
http://www.hindawi.com/journals/mpe//editors/

2016 - 2019 *ASME Journal of Heat Transfer*
(Associate Editor)
https://journaltool.asme.org/home/Mastheads.cfm?JournalID=10

2018 – present *Metals*
(Associate Editor)
https://www.mdpi.com/journal/metals/sectioneditors/computation_simulation_metals

2020 – present *Revista Vertices*
(International Scientific Editorial Board Member)
https://essentiaeditora.iff.edu.br/index.php/vertices/about/editorialTeam

2020 – present Journal of Engineering Science
(Member of the Editorial Board)
http://jes.utm.md/editorial-board/

2021 – 2024 ASME Open Journal of Engineering
(Associate Editor)

https://journaltool.asme.org/home/JournalDescriptions.cfm?JournalID=38
2023 – present Computational Thermal Sciences
(Member of the Editorial Board)
https://www.begellhouse.com/journals/computational-thermal-sciences.html

## 2. TEACHING, ADVISING AND MENTORSHIP

**Undergraduate Courses Taught**

1. Propulsion
2. Aerodynamics I
3. Aerodynamics II
4. Compressible Flow
5. Aerospace Analysis
6. Thermal Engineering
7. Transport Phenomena
8. Inverse Design (new elective course developed)
9. Introduction to Fluid Mechanics (honors course)
10. Physical Gasdynamics (elective course reorganized)
11. Design Optimization (new elective course developed)
12. Aerodynamic Shape Design (new elective course developed)
13. Airfoil, Wing, and Propeller Design (new elective course developed)
14. Introductory Computational Fluid Dynamics (elective course reorganized)
15. Introduction to Computational Thermo-Fluids (course reorganized)

**Graduate Courses Taught**

1. Dynamics of Ideal Fluids
2. Low Speed Aerodynamics
3. High Temperature Gasdynamics
4. Intermediate Fluid Mechanics (course reorganized)
5. Inverse Design (new course developed)
6. Theoretical Gas Dynamics (course reorganized)
7. Advanced Gas Dynamics (course reorganized)
8. Advanced Fluid Dynamics (course reorganized)
9. Foundations of Fluid Mechanics (course reorganized)
10. Physics of Compressible Fluids (new course developed)
11. Advanced Computational Aerodynamics (new course developed)
12. Multidisciplinary Inverse Design & Optimization (new course developed)
13. Grid Generation, Fast Algorithms, and Inverse Design (new course developed)
14. Multiphase Flows and Electro-Magneto-Hydrodynamics (new course developed)
15. Optimization Algorithms (course reorganized)
16. Advanced Aerodynamic Shape Design (new elective course developed)
17. Computational Fluid Dynamics (course reorganized)
18. Computational Engineering Analysis (course reorganized)

**Short Courses Taught**

1. Multi-Objective Evolutionary Optimization: Concepts and Applications (taught by Dulikravich, G. S., Chakraborti, N. and Egorov, I.) – A workshop in the Department of Mechanical and Materials Engineering, Florida International University, Miami, Florida, December 19, 2012.

2. Aero-thermal-elasticity-materials Optimization of Cooled Gas Turbine Blades – a Lecture Series on Numerical Optimization Methods & Tools for Multi-criteria/Multi-Disciplinary Design with Applications to Aeronautics and Turbomachinery, von Karman Institute for Fluid Dynamics, Belgium, November 15 – 19, 2004.
3. Analysis, Inverse Design and Optimization in Turbomachinery – A workshop in the Mechanical Engineering Department, University of Belgrade, Belgrade, Serbia and Montenegro, May 22, 2003.
4. Multidisciplinary Analysis, Inverse Design and Optimization – A workshop in the Mechanics Department, Mathematics Faculty, University of Belgrade, Belgrade, Serbia and Montenegro, May 19-21, 2003.
5. Recent Advances in Gas Turbine Cooling Techniques – A workshop in the Mechanical Engineering Department, Federal University of Rio de Janeiro (EE/COPPE/UFRJ), Rio de Janeiro, Brazil, February 12-13, 2003.
6. EUROGEN'99 – A Short Course on Evolutionary Algorithms in Engineering and Computer Science: Recent Advances and Industrial Applications, Jyvaskyla, Finland, May 30-June 3, 1999.
7. Genetic Algorithms Workshop and Tutorial, organizer and one of five lecturers, Applied Research Laboratory – The Pennsylvania State Engineering, October 8-9, 1998.
8. Methods for Acceleration of Iterative Algorithms for Systems of Partial Differential Equations, Institute for Mathematics, University of Novi Sad, Novi Sad, Yugoslavia, May 19-31, 1996.
9. New Design Concepts for High Speed Air Transport, CISM Advanced School, Udine, Italy, June 5-9, 1995.
10. Computational Fluid Dynamics and Heat Transfer, Turboinstitut, Ljubljana, Yugoslavia, May 27-31, 1990.
11. AGARD/FDP Specialists Workshop on Inverse Methods for Airfoil Design for Aeronautical and Turbomachinery Applications, VKI, Chateau St. Dennise, Brussels, May 14-18, 1990.
12. Inverse Design in Turbomachinery, United Technologies Res. Center, East Hartford, CT, March 30, 1988.
13. Transonic Flow Computations, Institute for Theoretical Physics, Zemun, Yugoslavia, August 3-4, 1987.
14. Computational Fluid Dynamics, Technical University of Rijeka, Yugoslavia, July 20-24, 1987.

**Ph.D. Students Supervised**

*Florida International University*

1. Ann Kayana Blanchard: "Aerodynamic Shape Optimization of Supersonic Passenger Airplane With Active Controls for Sonic Boom Minimization", (Aug. 2018 – June 2023).
2. Janhavi Chitale: "Multi-Disciplinary Analysis and Design Optimization of Compact Counter-Flow Supercritical Carbon Dioxide Based Heat Exchangers", December 2021.
3. Sohail R. Reddy: "Many-Objective Hybrid Optimization Under Uncertainty With Applications", December 2019.
4. Bruna Rafaela Loiola: ''Thermal Decomposition Identification of Biological Tissues in Treatments Due to Laser Ablation'', April 2018 (co-advised with Helcio R.B. Orlande from UFRJ, Brazil).
5. Cesar Cunha Pacheco: "State Estimation Applied to the Magnetic Resonance Thermometry for the Treatment of Tumors'', March 2018 (co-advised with Helcio R.B. Orlande and Marcelo J. Colaco from UFRJ, Brazil).
6. Diego Estumano: "Bayesian Statistics Use in Parameter Estimation for Mathematical Models of Epileptic Siezures", May 2017 (co-advised with Helcio R.B. Orlande from UFRJ, Brazil).

7. Rajesh Jha: “Combined Computational-Experimental Design of High Temperature, High Intensity Permanent Magnetic Alloys With Minimal Addition of Rare Earth Elements”, August 2016.
8. Ahmad Abassi Baharanchi: “Development of a Two-Fluid Drag Law for Clustered Particles Using Direct Numerical Simulation and Validation Through Experiment”, May 2016.
9. Abas Abdoli: “Optimization of Cooling Protocols for Hearts Destined for Transplantation”, December 2014.
10. Ramon J. Moral: “Hybrid Multi-Objective Optimization and Hybridized Self-Organizing Response Surface Method”, August 2008.
11. Seckin Gokaltun: “Lattice Boltzmann Method for Flow and Heat Transfer in Microgeometries”, August 2008.

*The Pennsylvania State University*

1. Thomas J. Martin: “Computer-Automated Multi-Disciplinary Analysis and Design Optimization of Internally Cooled Turbine Blades," May 2001.
2. Brian H. Dennis: “Simulation and Optimization of Electro-Magneto-Hydrodynamic Flows,” December 2000.
3. Eunseok Lee: “Optimization of Turbomachinery Airfoil Shapes in Viscous Unsteady Compressible Flows,” August 2000.
4. Kwang-Yoon Choi: "Sensitivity-Based Minimum Residual Methods for Convergence Acceleration of Iterative Algorithms,” December 1994.
5. Seungsoo Lee: “Acceleration of Iterative Algorithms for Euler and Navier-Stokes Equations,” May 1990.

*The University of Texas at Austin*

1. Stephen R. Kennon: "Numerical Solution of Weak Forms of Conservation Laws on Optimal Unstructured Triangular Grids," August 1987.
2. Chung-Yuan Huang: "Optimization of Explicit Time-Stepping Algorithms and Stream-Function-Coordinate (SFC) Concept for Fluid Dynamics Problems," May 1987.
3. Charles R. Olling: "Viscous/Inviscid Interaction in Transonic Separated Flows Over Solid and Porous Airfoils and Cascades," December 1985.

**M. Sc. Students Supervised**

*Florida International University*

1. Mateo Pachano Landazuri: “Aerodynamics of Star-Shaped Hypersonic Missiles: Multi-Objective Design Optimization”, non-thesis option August 2023.
2. Ruben Alejandro Fernandez: “Inverse Determination of Unsteady Thermal Boundary Conditions on Inaccessible Boundaries”, non-thesis option May 2023.
3. Joseph Coverston: “Numerical Simulation of Flushing Deposits in Pipelines”, May 2019.
4. Sohail R. Reddy: “Multi-Objective Analysis and Optimization of Integrated Cooling in Micro-Electronics With Hot Spots”, August 2015.
5. Eric J. Inclan: “The Development of a Hybrid Optimization Algorithm for the Evaluation and Optimization of the Asynchronous Pulse Unit”, December 2014.
6. Karla Keldani Quintao: “Optimization of Supersonic/Hypersonic Nozzle Shapes for Maximum Uniformity of Exit Flow”, December 2012.
7. Edgard Espinosa: “Design Optimization of Submerged Jet Nozzles for Enhanced Mixing”, December 2011.
8. Stephen Wood: “Modeling of Pipeline Transients: Modified Method of Characteristics”, August 2011.
9. Amanda Vianna: “Minimizing Response Time of a Pressure Wave Traveling in Hydraulic Fluid Flowing in a Long Elastic Tube with Axial Temperature Variation”, December 2010.

10. Carlos Velez: “Electric Arc Melting and Suction Casting Furnace for Manufacturing and Experimental Evaluation of Hf-based Bulk Metallic Glasses”, non-thesis M.S. degree option, August 2010.
11. Suvrat Bhargava (co-advised with Prof. Arvind Agarwal): “Optimization of the Molecular Structure of Refrigerants”, August 2010.
12. Ricardo Ardila: “Optimization of Three-dimensional Branching Networks of Microchannels for Thermal Management of Microelectronics”, December 2009.
13. Riken R. Patel (co-advised with Prof. Arvind Agarwal): “A Computational and Experimental Algorithm for Near Net Shape Fabrication of Thin Walled Ceramic Structure by Plasma Spray Forming”, August 2009.
14. Souma Chowdhury: “Modified Predator-Prey (MPP) Algorithm for Constrained Single –and Multi-Objective Optimization Problems”, December 2008.
15. Alexandre Aidov: “Modified Continuous Ant Colony Algorithm for Function Optimization”, August 2008.
16. Debasis Sahoo: “Wavelet-Based Neural Networks for Response Surfaces in Multi-Objective Evolutionary Optimization”, December 2005.
17. Mickael Gonzalez: “Multi-Objective Design Optimization of Topology and Performance of Fractal Branching Networks of Cooling Passages”, December 2005.
18. Nenad Jelisavcic: “Analysis and Multi-Objective Optimization of Branching Channel Cooling Systems”, August 2005.

*The University of Texas at Arlington*

1. Ravi Abram (Krishnamurti): “Convergence Acceleration of Inverse Design of Aerodynamic Configurations Using an Elastic Membrane Concept Based on Fourier Series”, non-thesis M.S. degree option, May 2000.

*The Pennsylvania State University*

1. Daniel P. Baker: “A Fourier Series Approach to the Elastic Membrane Inverse Shape Design Problem in Aerodynamics”, May 1999.
2. Craig Bates: "Forward and Inverse Electro-Cardiographic Calculations on a Multidipole Model of Human Cardiac Electrophysiology”, August 1997.
3. Brian H. Dennis: "A Software Package for Thermoelastic Optimization with Application to the Design of Internally Cooled Turbine Blades”, August 1997.
4. Norman F. Foster: "Shape Optimization Using Genetic Evolution and Gradient Search Constrained Algorithms," August 1995.
5. Scott G. Sheffer: "Shape Optimization of Three-dimensional Hypersonic Flight Vehicles for Minimum Drag and Aerodynamic Heating," May 1993.
6. Thomas J. Martin: "Inverse Design and Optimization of Two-and-Three Dimensional Coolant Flow Passages," May 1993.
7. Branko Kosovic: "Inverse Problems in Heat Transfer and Computation of Electrohydrodynamic and Magnetohydrodynamic Flows Including Solidification," December 1991.
8. Joel V. Madison: "Analysis and Optimization of Objects Subject to Unsteady Heat Conduction," May 1988.

*The University of Texas at Austin*

1. Yio-Wha Shau: "Comparative Study of Numerical Dissipation in Transonic Potential Flow Calculations," January 1986.
2. Ting-Lung Chiang: "Inverse Design of Composite Multiholed Internally Cooled Turbine Blades," December 1985.
3. Richard Carcaillet: "Generation and Optimization of Flow Adaptive Computational Grids," August 1985.
4. Tatsuo Fujinami: "Computation of Unsteady Separated Compressible Flows Using Free Vortex Method," August 1985.

5. David M. Sommerfield: "Computational Grid Generation for Wing-Body-Tail-Fin-Stabilizer Configurations," December 1984.
6. Stephen R. Kennon: "Novel Approaches to Computational Grid Generation, Inverse Design and Acceleration of Iterative Schemes," May 1984.

**B.Sc. Honors Theses and Senior Year Projects Supervised**

*Florida International University*

1. Hernando Lugo, Ruben Fernandez, William San Pedro, Sebastian Sema: “AAAASAE Aero Design Competition 2022 – Regular Class”, May 2022.
2. Ruben Fernandez, Hernando Lugo, Clara Bahoya, Walid Esiely, Andres Salgado, William San Pedro, Geisy Valdes Kishan Kalpoe: ”Design and Development of a SAE Class Competition Aircraft”, (second place overall at this international competition), Dec. 2021.
3. Gabriel de Armas, Jonathan Chavez, Manuel Gonzalez, Mellony Ladino: “Hydrofoil Design and Optimization”, April 2019.
4. Steven Castano, Karina Cornieles, Brian O’Farrell: “VTOL UAV for Littoral Combat Ships”, April 2019.
5. Naadir Kirlew, Daniel Klumpp, Nicholas Saint-Reid, Betsy Roque: “Clima-Drone”, April 2019.
6. Anthony Lozano, Jefrey Jimenez, Mariella Masforroll, Joshua Samuels: “Air-Cooled Three-Valve SOHC Cylinder Head Design”, April 2019.
7. Daniel Balbuena, Alexander Carcache, Andres Molares, Garone Smith: “Heart Cooling System”. April 2019.
8. Santiago Ruales, Kathryn Diaz, Eric Jones, Nicole Robinson and Brianna Gogins: “Bladelets - Winglets on Blades of Wind Turbines: A Multi-objective Design Optimization Study”, May 2018.
9. Joseph Coverston, Shane Colon and Amr Hosni: “Aerospike Nozzle Conversion for Commercial Rocket Motors”, December 2016.
10. Daniela Chavez Guevara, Sami Miguel El Awad Azrak and Daniel Steigerwald: “Design Optimization of a DeLaval Nozzle With Electro-Hydrodynamic Control of Flow Separation”, May 2016.
11. Marc Linares, Alessandro Ciampitti and Marco Robaina: “Design Optimization of a Supersonic Nozzle”, December 2015.
12. Peter Garcia, Saad Khan and Prajeep Nair: “Hydro-Thermal Weed Cleaner”, May 2015.
13. Andres Cardenas, Arjav Patel and Nestor Paz: “Design, Build and Test Fly Heavy Lift Radio Controlled Airplane – SAE Competition”, December 2014.
14. David M. Dominguez, Gianni Jimenez and Genesis Vasquez: “Design, Analysis and Construction of a Reaction Control System for an Orbital Launch Vehicle”, December 2014.
15. Fernando Lopez, Xavier Medina and Gianfranco Pisani: “Design Optimization of Car Engine Air Compressor Rotor for Higher Efficiency”, December 2014.
16. Sohail Reddy, Shannae Powell and Samuel Ness: “Optimization of Airplane Winglets of Scimitar Type”, April 2014.
17. Patricia Mathews, Rebekah Santana, Rafael Sanz and Marcelo Torrentes: “Temperature Field Measurements in a Realistic Heart During Perfusion Cooling”, December 2013.
18. Yoelmir Santana, Andres Ancarola and Rodrigo Redondo: “Ducted Fan Blended Wing UAV Design”, December 2012.
19. Daniel Gonzalez, Eduardo Vargas and Jorge Mar: “Design of a Four-Rotor UAV Controlled via Mobile Phone and Internet”, December 2012.
20. Cesar Rivera, Eduardo Espina and Stephanie George: “Electric Car Design and Competition”, April 2012.
21. Rinaldo Gonzalez Galdamez, Diego Moreno Ferguson and Juancarlo Rodriguez Gutierrez: “Design Optimization of Winglets for Wind Turbine Blades”, December 2011.

22. Byron Gaskin, Christopher Roath and Gregory Burrow: “Numerical Simulation and Experimental Measurement of Orthotropic Thermal Conductivity of Thin Coatings of Graphene”, April 2011.
23. Octavio Oliva, Francisco Morocz and Rinaldo Gonzalez: “Design Optimization of Exit Diffuser for a Portable 1kW Hydro-Electric Turbine”, April 2011.
24. Gianluca Minnella, Antonio Ugas and Yuniesky Rodriguez: “Aerodynamic shape design optimization of airplane winglets”, December 2010.
25. Raymundo Onetto, Holger Pass and Homero Perez: “Cube Satellite Design”, April 2010.
26. Octavio Oliva: “Examining a Theory Linking Earth Surface Magnetic Field Variation and Trajectories of Category 5 Hurricanes”, Dept. of Mechanical and Materials Engineering, FIU, August 2009.
27. Stephen Wood: “Verification and Validation of the AMROC Fluid Solver Framework Coupling with DYNA3D within the Virtual Test Facility Fluid Structure Interaction Suite”, Dept. of Mechanical and Materials Engineering, FIU, August 2009.
28. Edgard Espinosa and Daniel Llanes: “Design Optimization of Three-Bladed Shrouded Water Turbine for Extracting Energy from Deep Ocean Currents”, December 2008.
29. Alain Hernandez, Chris Hoffman, Shakur Kazi, Emanuele Colognato and Ramon Duran: “Resizing the Micro-Jet Engine Test Stand and Measuring Engine Efficiencies and Chemical Composition of Exhaust Gases from Various Bio-Diesel Fuel Mixtures”, December 2008.
30. Keron Howe, Andres Escobar, Brian Harris, Ricardo Ardilla and Carlos Rueda: “CFD Analysis of 3D Aerodynamics of Formula-1 Racing Cars”, December 2007.
31. Dan Becker, Ivan Darias, Dwayne Gordon, Michelle Heethawakage and Kin Ng: “Instrumenting a Micro-Jet Engine and Building a Complete On-Line Test Stand”, December 2007.
32. Damien Lloyd, Duy Nguyen, Robert Jordan and Sergio Sanchez: “Design and CFD Simulation of Chevron-Type Separator of Solid Microparticles from Exhaust Gases”; December 2006.

*The Pennsylvania State University (Honors B.Sc. theses supervised)*

1. Daniel P. Baker: “A Graphically Interactive Design Environment for Multicomponent Airfoils”, Dept. of Aerospace Engineering, May 1997.
2. Craig Bates: "Inverse Determination of Locations and Strengths of Electric Impulses Inside a Human Heart Based on Chest Surface Measurements of Electric Potential", Dept. of Eng. Science & Mechanics, May 1996.
3. Chris Gross: "Feasibility Study of a Magnetohydrodynamic Blood Pump", Dept. of Eng. Science & Mechanics, May 1996.
4. Jonathan D. Halderman: "The Boundary Element Method Application to Elastostatics and Development of a Two-dimensional Analysis Code", Dept. of Eng. Science and Mechanics, May 1994 (Best Thesis Award).
5. Brian Smith: "Computational Grid Generation Using Optimization", Dept. of Eng. Science & Mechanics, May 1994.

**Visiting Scholars and Post-Doctoral Fellows Hosted and Supervised**

1. Mr. Mathias Scharrer (Graz University of Technology, Graz, Austria), “Algorithms for Parameters Identification in Models of Electrochemistry in Li-Ion Batteries”, (04/19).
2. Ms. Ainagul Jumabekova (LOCIE, Savoie Mont Blanc University, France), “Inverse Determination of Spatially Varying Parameters in Topology Detection”, (04-06/19).
3. Prof. Julien Berger (LOCIE, Savoie Mont Blanc University, France), “Parameter Identification of Heat and Mass Transfer in Moist Walls”, (02/19).
4. Prof. Daniel Watzenig (Graz University of Technology, Graz, Austria), “Algorithms for Autonomous Road Vehicles”, (10/18).

5. Mr. Michal Butterweck (Gdansk University of Technology, Gdansk, Poland), “Stream-Function-as-a-Coordinate Concept for Inverse Axisymmetric Nozzle Shape Design in Compressible Viscous Flow”, (03/13-06/13).
6. Prof. Nirupam Chakraborti (Indian Institute of Technology – Kharagpur, India), “Multi-Objective Design Optimization of Metallic Alloys”, (08/12-05/13).
7. Mr. Flavio Vianna (Petrobras, Brazil), “Detection of the Location of Hydrides Formation in Pipelines Using Inverse Heat Transfer and Bayesian Filters,” (12/08-06/10).
8. Ms. Priscila Ferreira Barbosa de Sousa (Universidade Federal de Uberlandia, Brazil), “Inverse Problem Applied to Bioengineering: Studies of Thermal Process during Bone Drilling,” (01/08-12/08).
9. Prof. Marcelo J. Colaco, (Military Institute, Rio de Janeiro, Brazil): “Multi-disciplinary Design Optimization and Response Surface Formulation Concepts,” (09/06-11/06; 01/08).
10. Mrs. Dejana Herceg, Ph.D. student (University of Novi Sad, Novi Sad, Serbia), “Optimization of Electric Grid Topologies for a Balanced Load”, (07/07)
11. Prof. Andres Tremante, Senior Visiting Scientist (Universidad Simon Bolivar, Venezuela): “Multi-objective Evolutionary Optimization of Multi-phase Fluid Flow and Heat Transfer”, (8/05-8/06)
12. Prof. William Annicchiarico, Senior Visiting Scientist (Universidad Central de Venezuela, Caracas, Venezuela): “Parallel Processing of FEM Codes for 3-D Elasticity Analysis”, (10/04; 08/06-12/07).
13. Dr. Huiyuan Fan, Senior Visiting Scientist (Technion, Haifa, Israel): “Multidisciplinary Optimization of Combustion Chambers,” (03/03-03/04).
14. Prof. Helcio R. B. Orlande, (Federal University of Rio de Janeiro, Brazil): “Inverse Determination of Diffusion Coefficients in Unsteady Diffusion Models,” (01/03-02/03; 02/07; 01/08-02/08; 03/12; 03/18; 01/20-06/20).
15. Dr. Marcelo J. Colaco, Postdoctoral Fellow, (Federal University of Rio de Janeiro, Rio de Janeiro, Brazil): “Multi-disciplinary Analysis and Design Optimization of EMHD Controlled Solidification, Fuel Cells, and Cooled Turbine Blades,” (09/01-10/02; 09/06-11/06; 07/11; 02/15; 03/18; 01/19).
16. Prof. Igor N. Yegorov, (Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, Moscow, Russia): “Multiobjective Constrained Optimization,” (01/00-02/00; 07/00; 04/03-08/03; 11/04-01/05; 02/17).
17. Mr. Valentino Pediroda, Research Associate (University of Udine, Udine, Italy): “Benchmarking of Multiobjective Constrained Optimization and Computational Fluid Dynamics Software”, (01/99-07/99).
18. Prof. Milan V. Petrovic, (University of Belgrade, Belgrade, Yugoslavia): “Aerodynamic Optimization of Multistage Axial Flow Turbine Blade Rows Inlet/Exit Parameters,” (06/98-08/98).
19. Prof. Zhen-Xue Han, (Beijing University of Aeronautics and Astronautics, Beijing, P. R. China): “3-D Aerodynamic Shape Optimization Using Navier-Stokes Codes on Non-Structured Grids,” (03/98-01/00).
20. Prof. Hyung-Jong Ko, (Kumoh National University of Technology, Kyungbuk, Korea): “Multidisciplinary Inverse Design and Optimization Involving Electro-Magneto-Hydrodynamics,” (02/98-01/99).
21. Dr. George Savu, Senior Research Scientist (National Research Design Institute for Turbomachinery COMOTI, Bucharest, Romania): “Turbulent and Transitional Boundary Layer Models Without Adjustable Parameters,” (10/97-12/97).
22. Prof. Zhengming Wang, (Academia Sinica, Institute for Engineering Thermophysics, Beijing, P. R. China): "Turbomachinery Aerodynamic Shape Inverse Design Using Navier-Stokes Equations," (01/94-07/94).

23. Prof. Myong Hwan Sohn, (Dept. of Aero. Eng., Air Force Academy, Choongbula-Do, Korea): "Aerodynamic Shape Inverse Design and Optimization," (08/93-08/94).
24. Prof. Xiuying Li, (Dept. of Aerospace Technology, Changsha Institute of Technology, Changsha, Hunan, P. R. China) "Characteristic and Non-Reflecting Exit Flow Boundary Conditions," (08/93-03/94).
25. Prof. Vadim I. Polezhaev, (Institute for Problems in Mechanics, Russian Academy of Sciences, Moscow, Russia): "Electrophoretic Separation and Crystal Growth in Microgravity," (02/93-05/93)
26. Prof. Helmut Sobieczky, (Institut fuer Stroemungsmechanik, DLR-Goettingen, F. R. Germany): "Transonic and Hypersonic Shape Inverse Design," (10/91; 10/93).
27. Dr. Seungsoo Lee, Postdoctoral Fellow (Defense Research Agency, Taejeon, Korea): "Magnetohydrodynamic and Electrohydrodynamic Flow Modeling and Computations," (02/90-06/90).
28. Dr. Lionel Marraffa, Group Leader (ONERA, Chatillon, France and ESTEC, Noordwijk, The Netherlands): "Hypersonic Radiating Flow Modeling and Computations," (08/85-03/87; 04/88-06/88; 10/89; 01/93; 01/96).
29. Prof. Bing Ren, (Changsha Institute of Technology, Changsha, P. R. China): "A Survey of Total Variation Diminishing (TVD) Schemes," (05/87-11/87).
30. Mr. Andrej Lipej, Senior Researcher (Turboinstitut, Ljubljana, Yugoslavia): "Numerical Methods for Hydraulic Turbomachinery Flow Computations," (09/87-11/87).

**Member of Ph.D. Dissertation Committee**

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**Professional Societies Administrative Activities**

Member, ASME Technical Committee on Turbomachinery, Gas Turbine Division, October 1984-present.
Member, ASME Technical Committee on Computational Heat Transfer (K-20), August 1993-present.
Member, ASME Technical Committee on Bioengineering Heat Transfer (K-17), December 1988-present.
Member, AIAA Technical Committee on Multidisciplinary Design Optimization, 1/91-5/93; 5/03-5/06.
Member, AIAA Technical Committee on Space Processing, May 1993-Dec. 2002.
Member, AIAA National Technical Committee on Appl. Aerodynamics, May 1985-May 1988.
Chairman, AIAA Education Committee, Southwest Texas Section, May 1983-January 1986.
Faculty Advisor, AIAA Student Branch, University of Texas at Austin, 1982-1984.
Faculty Advisor, AIAA Student Branch, University of Texas at Arlington, 2001-2002.
Founding Faculty Advisor, AIAA Student Branch, Florida International University, 2009-2023.

## 3. SCHOLARLY WORK

**Books and Conference Proceedings**

1. Sabatini, R. and 26 others including Dulikravich, G.S. (editors): *Sustainable Aviation Technology and Operation; Research and Innovation Perspectives,* John Wiley & Sons, October 2023. (ISBN: 978-1-118-93258-2)
2. Fudym, O., Battaglia, J.-L., Dulikravich, G. S., Orlande, H. R. B. and Colaco, M. J. (editors): IPDO 2013 - 4th Inverse Problems, Design and Optimization Symposium, ISBN 979-10-91526-01-2, Ecole des Mines d'Albi-Carmaux, France, June 26-28, 2013.
3. Dulikravich, G. S., Colaco, M. J., Orlande, H. R. B. and Tanaka, M. (editors): *Inverse Problems, Design and Optimization (IPDO-2007) Vol. I*, ISBN: 978-1-59916-279-9, Florida International University, Miami, FL, June 2007. http://ipdo2007.ipdos.org/
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5. Colaco, M. J., Orlande, H. R. B and Dulikravich, G. S. (editors) *Inverse Problems, Design and Optimization – IPDO, Vol. I*, ISBN: 85-7650-029-9, E-papers Publishing House, Ltd., Rio de Janeiro, Brazil, March, 2005. http://ipdo2004.ipdos.org/
6. Colaco, M. J., Orlande, H. R. B and Dulikravich, G. S. (editors) *Inverse Problems, Design and Optimization – IPDO, Vol. II*, ISBN: 85-7650-030-2, E-papers Publishing House, Ltd., Rio de Janeiro, Brazil, March, 2005.
7. Tanaka, M. and Dulikravich, G. S. (editors) *Inverse Problems in Engineering Mechanics III*, a book of selected proceedings of *International Symposium on Inverse Problems in Engineering Mechanics 2001 (ISIP'01*), Nagano, Japan, Elsevier Science, Ltd., U.K., 2001 (ISBN 0 08 043951 9).
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9. Fujii, K. and Dulikravich, G. S. (editors): *Recent Development of Aerodynamic Design Methodologies - Inverse Design and Optimization,* Vieweg Series on *Notes on Numerical Fluid Mechanics*, Vol. 68, Springer, April 1999. (ISBN: 978-3-322-89954-5).
10. Dulikravich, G. S., Woodbury, K. A., Blackwell, B. and Amon, C., (editors): *Proceedings of Symposium on Multidisciplinary Inverse Problems and Optimization in Heat Transfer*, ASME International Mechanical Engineering Congress and Exposition, Anaheim, CA, Nov. 16-20, 1998, ASME HTD-Vol. 361-5.
11. Tanaka, M. and Dulikravich, G. S. (editors) *Inverse Problems in Engineering Mechanics I*, a book of selected proceedings of *International Symposium on Inverse Problems in Engineering Mechanics 1998 (ISIP'98*), Nagano, Japan, Elsevier Science, Ltd., U.K., 1998 (ISBN 0-08-043319-7).
12. Dulikravich, G. S. and Woodbury, K. A. (editors): *Proceedings of Symposium on Inverse Design Problems in Heat Transfer and Fluid Flow*, ASME National Heat Transfer Conference, Baltimore, MD, August 10-12, 1997, ASME HTD-Vol. 340, Volume 2.
13. Siginer, D. A. and Dulikravich, G. S. (editors): *Proceedings of Symposium on Developments in Electrorheological Flows-1995*, ASME WAM'95, San Francisco, CA, November 12-17, 1995, ASME FED-Vol. 235, MD-Vol. 71.
14. Dulikravich, G. S. (editor): *Proceedings of the Third International Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-III),* Washington, D.C., October 23-25, 1991; also NASA CR-188125, January 1992.

15. Dulikravich, G. S. (*Invited Editor*): *Interdisciplinary Inverse Design and Optimization*, a special issue of the Applied Mechanics Reviews, June 1988.
16. Dulikravich, G. S. (editor): *Proceedings of the Second International Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-II),* The Pennsylvania State University, University Park, PA, October 26-28, 1987.
17. Dulikravich, G. S., (editor): *Proceedings of the First International Conference on Inverse Design Concepts in Engineering Sciences (ICIDES-I)*, University of Texas at Austin, College of Engineering, October 17-18, 1984.

**Book Chapters**

1. Gavrilovic, N., Rasuo, B., Parezanovic, V., Dulikravich, G. and Moschetta, J.-M., "Overall Contribution of Wingtip Devices to Improving Aircraft Performance", Chapter 12 in *Sustainable Aviation Technology and Operation; Research and Innovation Perspectives* (eds.: Sabatini, R. and Gardi, A.), Wiley, pp. 325-342.
2. Jha, R., Dulikravich, G. S., Colaço, M. J., Fan, M., Shwartz, J., and Koch, C. C., "Magnetic Alloys Design Using Multi-Objective Optimization", (eds.: Oechsner, A., Altenbach, H.), *Properties and Characterization of Modern Materials*, *Advanced Structured Materials series*, Springer, Singapore, 2017, Vol. 33, pp. 261-284.
3. Dulikravich, G. S. and Colaco, M. J., "Hybrid Optimization Algorithms and Hybrid Response Surfaces", Chapter 2 in *Advances in Evolutionary and Deterministic Methods for Design, Optimization and Control in Engineering and Sciences* (eds.: D. Greiner, B. Galván, J. Periaux, N. Gauger, K. Giannakoglou, G. Winter), Computational Methods in Applied Sciences Series, Springer Verlag, 2015, pp. 19-47. ISBN: 978-3-319-11541-2 DOI: 10.1007/978-3-319-11541-2_2
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5. Colaco, J. M. and Dulikravich, G. S., "A Survey of Basic Deterministic, Heuristic and Hybrid Methods for Single-Objective Optimization and Response Surface Generation", Chapter 10 in *Thermal Measurements and Inverse Techniques*, (eds: Orlande, H. R. B., Fudym, O., Maillet, D. and Cotta, R.), Taylor & Francis, June 2011, pp. 355-405.
6. Dulikravich, G. S., Orlande, H. R. B. and Dennis, B. H., "Inverse Engineering," in *Computational Mechanics: Solids, Structures and Coupled Problems* (eds: Mota Soares, C.A., Martin, J.A.C., Rodrigues, H.C. and Ambrosio, J.A.C.), Springer, Lisbon, Portugal, June 5-8, 2006, pp. 269-288.
7. Dennis, B. H. and Dulikravich, G. S., "Control of Flow Separation Over a Circular Cylinder Using Electro-Magnetic Fields: Numerical Simulation," Chapter 12 in *Computing the Future IV: Frontiers of Computational Fluid Dynamics – 2006*, (eds: Caughey, D. A. and Hafez, M. M.), World Scientific Publishing, Singapore, 2005, pp. 265-284.
8. Colaco, J. M., Dulikravich, G. S., Orlande, H. R. B. and Martin, T. J., "Hybrid Optimization With Automatic Switching Among Optimization Algorithms", a chapter in *Evolutionary Algorithms and Intelligent Tools in Engineering Optimization* (eds: W. Annicchiarico, J. Périaux, M. Cerrolaza and G. Winter), CIMNE, Barcelona, Spain/WITpress, UK, (ISBN 1-84564-038-1), 2005, pp. 92-118.
9. Dulikravich, G. S., Martin, T. J., Dennis, B. H. and Egorov, I. N., "Aero-Thermal-Elasticity-Materials Optimization of Cooled Gas Turbine Blades: Part I," chapter in

*Lecture Series on Numerical Optimization Methods & Tools for Multi-Criteria/Multi-Disciplinary Design with Applications to Aeronautics and Turbomachinery*, VKI LS 2004-07, von Karman Institute for Fluid Dynamics, Belgium, November 15 – 19, 2004.

10. Dulikravich, G. S., Martin, T. J., Dennis, B. H. and Egorov, I. N., "Aero-Thermal-Elasticity-Materials Optimization of Cooled Gas Turbine Blades: Part II," chapter in *Lecture Series on Numerical Optimization Methods & Tools for Multi-Criteria/Multi-Disciplinary Design with Applications to Aeronautics and Turbomachinery*, VKI LS 2004-07, von Karman Institute for Fluid Dynamics, Belgium, November 15 – 19, 2004.
11. Martin, T. J. and Dulikravich, G. S., "Boundary Element Techniques for Inverse Problems", Chapter 6 in *Inverse Engineering Handbook* (ed.: Woodbury, K. A.), CRC Press, Boca Raton, FL, 2002, pp. 361-394.
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13. Dulikravich, G. S.: "Electro-Magneto-Hydrodynamics and Solidification," Chapter no. 9 in *Advances in Flow and Rheology of Non-Newtonian Fluids, Part B* (eds: D. A. Siginer, D. De Kee and R. P. Chhabra), Rheology Series, 8, Elsevier Publishers, June 1999, pp. 677-716.
14. Dulikravich, G. S., Martin, T. J., Dennis, B. H. and Foster, N. F.: "Multidisciplinary Hybrid Constrained GA Optimization", *Invited lecture*, Chapter 12 in *EUROGEN'99 - Evolutionary Algorithms in Engineering and Computer Science: Recent Advances and Industrial Applications*, (eds: K. Miettinen, M. M. Makela, P. Neittaanmaki and J. Periaux), John Wiley & Sons, Jyvaskyla, Finland, May 30-June 3, 1999, pp. 231-260.
15. Dulikravich, G. S. and Baker, D. P.: "Using Existing Flow-Field Analysis Codes for Inverse Design of Three-dimensional Aerodynamic Shapes," a chapter in *Recent Development of Aerodynamic Design Methodologies - Inverse Design and Optimization,* (eds: Fujii, K. and Dulikravich, G. S.), Vieweg Series on *Notes on Numerical Fluid Mechanics*, Vol. 68, Springer, April 1999, pp. 89-112.
16. Dulikravich, G. S.: "Design and Optimization Tools Development", Chapters no. 10-15 in *New Design Concepts for High Speed Air Transport,* (ed: H. Sobieczky), Springer, Wien/New York, 1997, pp. 159-236.
17. Dulikravich, G. S. and Martin, T. J.: "Inverse Shape and Boundary Condition Problems and Optimization in Heat Conduction", Chapter no. 10 in *Advances in Numerical Heat Transfer - Volume I* (eds: Minkowycz, W. J. and Sparrow, E. M.), Taylor & Francis, November 1996, pp. 381-426.

**Peer-Reviewed Journal Papers**

1. A Self-Adapting Algorithm for Many-Objective Optimization (with Reddy, S.R.), Applied Soft Computing, vol. 129 (1), 2022, pp. 1-28, https://doi.org/10.1016/j.asoc.2022.109484
2. Thermal Ablation Effects on Rotors that Characterize Functional Re-entry Cardiac Arrhythmia (with Dantas, E., Orlande, H.R.B.), Journal for Numerical Methods in Biomedical Engineering, Vol. 38 (2), 2022, pp. 1-24, doi:10.1002/cnm.3614
3. Temperature Regimes and Chemistry for Stabilizing Precipitation Hardening Phases in Al-Sc Alloys: Combined CALPHAD - Deep Machine Learning (with Jha, R.), ASME Open Journal of Engineering, Vol. 1, 2022, pp. 011021-1 to 011021-12.
4. Effects of Thin Film Heat Spreader on Hot Spots Mitigation in Heat Sinks (with Reddy, S.R., Blanchard, A.K.), ASME Journal of Thermal Science and Engineering Applications, Vol. 14, Issue 8, August 2022, pp. 081013-1 to 081013-10.

5. Optimization and Inverse Design of Floor Tile Airflow Distributions in Data Centers Using Response Surface Method (with Phan, L., Hu, B.-C., Lin, C.-X.), ASME Journal of Fluids Engineering, Vol. 144, Issue 1, January 2022, pp. 011503-011523.
6. Computational Model of Nanoparticle Penetration into Tumor Spheroids: Effects of Surface Functionalization and Hyperthermia (with Nagesetti, Orlande, H.R.B., Colaco, M.J., McGoron, A.J.), International Journal for Numerical Methods in Biomedical Engineering, June 20, 2021, pp. 1-21, https://doi.org/10.1002/cnm.3504
7. Effects of Atmospheric Uncertainties on Sonic Boom Perceived Loudness (with Reddy, S.R., Chitale, J.), ASME J. of Fluids Engineering, 143 (4), 2021, pp. 041504-1-12.
8. Discovery of New Ti-Based Alloys Aimed at Avoiding/Minimizing Formation of a" and ω - Phase Using CALPHAD and Artificial Intelligence (with Jha, R.), Metals, 11 (1), 2021, pp. 1-15.
9. Solidification and Heat Treatment Simulation for Aluminum Alloys with Scandium Addition through CALPHAD Approach (with Jha, R.), Computational Materials Science, 182, 1-8, Sept. 2020, 109749.
10. Searching an Optimal Experiment Observation Sequence to Estimate the Thermal Properties of a Multilayer Wall Under Real Climate Conditions (with Jumabekova, A., Berger, J., Foucquier, A.), International Journal of Heat and Mass Transfer, Vol. 155, July 2020, pp. 119810.
11. Estimation of State Variables and Model Parameters for the Evolution of Covid-19 in the City of Rio de Janeiro (with Orlande, H.R.B., Colaco, M.J., Ferreira, L.), medRxiv preprint doi: https://doi.org/10.1101/2020.05.21.20108407
12. Approximate Bayesian Computation Applied to the Identification of Thermal Damage of Biological Tissues Due to Laser Irradiation (with Loiola, B.R., Orlande, H.R.B.), International Journal of Thermal Sciences, Vol. 151, May 2020, 106243.
13. Real-Time Temperature Estimation with Enhanced Spatial Resolution During MR-Guided Hyperthermia Therapy (with Pacheco, C.C., Orlande, H.R.B., Colaco, M.J., Varon, L.A.B., Lamien, B.), Numerical Heat Transfer: Part A, 2020, Vol. 77, Issue 8, pp. 782-806.
14. Accelerating Parameter Estimation in Doyle-Fuller-Newman Model for Lithium-Ion Batteries (with Reddy, S.R., Scharrer, M.K., Pichler, F., Watzenig, D.), COMPEL – The International Journal of Computation and Mathematics in Electrical and Electronic Engineering, Vol. 38, No. 5, 2019, pp. 1533-1544.
15. Evaluation of the Reliability of a Heat and Mass Transfer Model in Hygroscopic Material (with Berger, J., Busser, T., Reddy, S.R.), International Journal of Heat and Mass Transfer, Vol. 142, 118258. https://doi.org/10.1016/j.ijheatmasstransfer.2019.06.014
16. Design of High Temperature Ti-Al-Cr-V Alloys for Maximum Thermodynamic Stability Using Self-Organizing Maps (with Jha, R.), Metals, Vol. 8, Issue 537, 2019, pp. 1-14.
17. Bladelets - Winglets on Blades of Wind Turbines: A Multiobjective Design Optimization Study (with Reddy, S.R., Sobieczky, H., Gonzalez, M.), ASME Journal of Solar Energy Engineering: Including Wind Energy and Building Energy Conservation, Vol. 141, 2019, 061003-1 – 061003-6.
18. Many-Objectives Differential Evolution Optimization Based on Reference Points: NSDE-R (with Reddy, S.R.), Structural and Multidisciplinary Optimization, Vol. 60, No. 4, 2019, pp. 1455-1473.
19. Simultaneous Determination of Spatially Varying Thermal Conductivity and Specific Heat Using Boundary Temperature Measurements (with Reddy, S.R.), Inverse Problems in Science and Engineering, Vol. 27, Issue 11, 2019, pp. 1635 - 1649.
20. Thermal Damage During Ablation of Biological Tissues (with Loiola, B.R., Orlande, H.R.B.), Numerical Heat Transfer, Part A: Applications, Vol. 73, Issue 10, 2018, pp. 685-701.

21. State Estimation Problems in PRF-Shift Magnetic Resonance Thermometry (with Pacheco, C.C., Orlande, H.R.B., Colaco, M.J.), International Journal of Numerical Methods for Heat and Fluid Flow, Vol. 28, Issue 2, 2018, pp. 315-335.
22. Non-Destructive Estimation of Spatially Varying Thermal Conductivity in 3D Objects Using Boundary Thermal Measurements (with Reddy, S.R., Zeidi, S.M.J.), International Journal of Thermal Sciences, Vol. 118, 2017, pp. 488-496.
23. Constrained Reduced Order Models Based on Proper Orthogonal Decomposition (with Reddy, S.R., Freno, B.A., Cizmas, P.G.A., Gokaltun, S., McDaniel, D.), Computer Methods in Applied Mechanics and Engineering, Vol. 321, 2017, pp. 18-34.
24. Multiscale Modeling of Nonequilibrium Gas-Liquid Mixture Flows in Phase Transition Regions (with Sattarov, R.M., Sattarzada, I.R.), Particulate Science and Technology, Vol. 36, 2018, Issue 7, pp. 824-831.
25. Self-Organizing Maps for Pattern Recognition in Design of Alloys (with Jha, R., Chakraborti, N., Fan, M., Schwartz, J., Koch, C.C., Colaco, M.J., Poloni, C., Egorov, I.N.), Materials and Manufacturing Processes, Vol. 10, 2017, pp. 1067-1074.
26. Effect of Cooling Fluids on High Frequency Electric and Magnetic Fields in Microelectronic Systems with Integrated TSVs (with Abdoli, A., Reddy, S.R., Zeidi, S.M.J.), Microelectronics Journal, Vol. 64, 2017, pp. 19-28.
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153. The Inverse Design of Internally Cooled Turbine Blades (with Kennon, S. R.), ASME Journal of Engineering for Gas Turbines and Power, Vol. 107, January 1985, pp. 123-126.
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**Under Review - Peer Reviewed Journal and Book Publications**

1. Stream-Functions-as-Coordinates (SFC) Models for Inverse Design of 2D and 3D Shapes in Steady, Laminar Flows of Viscous, Compressible Fluids (with Butterweck, M., Reddy, S.R.)
2. Dulikravich, G.S., Dennis, B.H. and Colaco, M.J., *"Electro-Magneto-Fluid-Dynamics (EMFD): Theory and Simulations"*, a book contract with Wiley & Sons (to appear in 2026)

**Papers in Conference Proceedings (*Refereed)**

1. Inverse Design of Nozzle Shapes for Supersonic, Viscous, Shocked Flows (with Butterweck, M., Reddy, S.), *Keynote Lecture*, 11th International Conference on Inverse Problems in Engineering: Theory and Practice, Buzios, Brazil, June 23-28, 2024.
2. Laser Heating of Spheroids Containing Nanoparticles (with Pacheco, C.C., Orlande, H.R.B., McGoron, A.J.), Paper IHTC-17-0813, Proceedings of the 17th International Heat Transfer Conference, Cape Town, South Africa, August 14-18, 2023.
3. Parametric Analysis of the Thermal Ablation Treatment of Cardiac Arrhythmia (with Dantas, E., Orlande, H.R.B.), paper TFEC-2022-41205, 7th Thermal and Fluids Engineering Conference (TFEC), Las Vegas, NV, May 16-18, 2022.
4. *A Multi-Objective Hybrid Optimization Methodology for Minimizing Sonic Boom of Aircraft at Fixed Lift (with Blanchard, A.-K., Schoppe, J., Reddy, S.R., Cizmas, P.G.A.), AIAA SciTech2022, San Diego, CA, January 4-8, 2022.
5. *Heat Transfer Performance of a Supercritical CO2 Based Microchannels Recuperator Including Thermal Buoyancy (with Chitale, J.), CHT-21-271 - 8th International Symposium on Advances in Comput. Heat Transfer, Rio de Janeiro, Brazil, August 15 - 19, 2021.
6. Multi-Disciplinary Practical Solutions of Inverse Problems, Plenary Lecture, Inverse and Ill-Posed Problems-XIII International Scientific Conference, Novosibirsk, Russia, April 12-20, 2021 (online).
7. Computational Design of Alloy Chemistry for Optimized Multiple Macroscopic and Microscopic Properties (with Jha, R.), Best Poster Award, NSF-JST Joint Workshop on Thermal Transport, Materials Informatics and Quantum Computing, March 22-25, 2021.
8. *Design of Ti-Al-Cr-V Alloys for Maximum Thermodynamic Stability (with Jha, R.), 2021 TMS Annual Meeting & Exhibition, March 15-18, 2021.
9. *Inverse Design of Chemistry of High Temperature Ni-Base Superalloys Using CALPHAD and Machine Learning (with Jha, R.), 2021 TMS Annual Meeting & Exhibition, March 15-18, 2021.
10. *Discovery of Optimized ω-Phase Free Ti-Based Alloys Using CALPHAD and Artificial Intelligence Approach (with Jha, R.), 2021 TMS Annual Meeting & Exhibition, March 15-18, 2021.
11. *Conjugate Heat Transfer Analysis of a Supercritical CO2 Based Counter-Flow Micro Channels 3D Heat Exchanger (with Chitale, J., Abdoli, A., Sabau, A.S., Black, J.B.), IThrerm-19th IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, pp. 23-29, Orlando, FL, July 2020.
12. Interaction of Inverse Problems, Design and Optimization, *Plenary Lecture*, Inverse Problems, Design and Optimization Symposium – IPDO2019, Tianjin, China, Sept. 24-26, 2019.
13. *A Hybrid Algorithm for Many-Objective Optimization (with Reddy, S.R), Inverse Problems, Design and Optimization Symposium – IPDO2019, Tianjin, China, Sept. 24-26, 2019.
14. *Achieving Quieter Supersonic Flight Through Outer-Mold Line Modifications: An Optimization Study (with Reddy, S.R., Carpenter, F.L., Cizmas, P.G.), AIAA Aviation 2019, Dallas, TX, June 17-21, 2019.
15. *Controlling Sonic Boom Loudness Through Outer Mold Line Modification: A Sensitivity Study (with Carpenter, F.L., Cizmas, P.G., Reddy, S.R.), AIAA paper 3019495, AIAA Sci. and Technology Forum and Exposition 2019, San Diego, CA, January 7-11, 2019.
16. *Magnetic Resonance Thermometry During the Localized Heating of Biological Tissues, (with Pacheco, C.C., Orlande, H.R.B., Colaco, J.M.), paper IHTC16-22069, The 16th International Heat Transfer Conference, Beijing, China, August 10-15, 2018.

17. *Simultaneous Model Selection and Parameter Estimation in Heat Conduction (with Loiola, B.R., Orlande, H.R.B.), Joint ICVRAM-ISUMA Uncertainties Conference, paper ICWRAMISUMA2018-0132, Florianopolis, SC, Brazil, April 8-11, 2018.
18. *Experimental Estimation of a Heat Flux Imposed by a Laser Diode With the Steady State Kalman Filter (with da Fonseca, H.M., Pacheco, C.C., Orlande, H.R.B., Fudym, O.), American Society of Thermal and Fluids Engineers ASTFE, paper TFEC-2018-20899, Fort Lauderdale, FL, March 4-7, 2018.
19. *Bladelets - Winglets on Blades of Wind Turbines: A Design Optimization Study (with Reddy, S.R., Sobieczky, H.), paper ASME IMECE-70220, Tampa, FL, Nov. 3-9, 2017.
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21. High Frequency and High Power Electro-Magneto-Hydro-Dynamics and Heat Transfer (with Abdoli, A., Zeidi, S.M.J., Reddy, S.R.), ***Invited Lecture***, ASME IMECE2017-70221, Tampa, FL, Nov. 3-9, 2017.
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23. Parameter Identification in Differential Equations: A Hybrid Minimization Based Method, (with Reddy, S.R., Colaco, M.J. and Orlande, H.R.B.), ***Invited Lecture***, New Trends in Parameter Identification for Mathematical Models: Applications to PDEs and Integral Equations, Rio de Janeiro, Brazil, Oct. 30 – Nov. 3, 2017.
24. *Reduced Order Model for Fluid Flow and Transport of Passive Scalars in Fluidized Beds (with Reddy,' S.R., Chitale, J., Cizmas,' P.G.A., Gokaltun,' S., McDaniel, D.), *VII International Conference on Coupled Problems in Science and Engineering*, Rhodos Island, Greece, June 12-14, 2017.
25. *Analysis of Anisotropic Graphene Platelet Heat Spreaders to Reduce Hot Spot Temperature and Temperature Non-Uniformity (with Reddy, S.R.), IEEE iTherm 2017, Orlando, Florida, USA, May 30-June 2, 2017.
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27. *Effects of Needle Lift and Fuel Type on Cavitation Formation and Heat Transfer Inside Diesel Fuel Injector Nozzle (with Zeidi, S.M.J., Reddy, S.R., Darvish, S.), International Symposium on Advances in Computational Heat Transfer, paper CHT-17-102, Naples, Italy, May 28-June 1, 2017.
28. *Conjugate Cooling Protocols for Human Hearts Including Epicardial Blood Vessels (with Abdoli, A., Zeidi, S.M.J.), CMBE2017, Pittsburgh, PA, April 10-12, 2017.
29. *Development of Reduced Order Model for Reacting Gas-Solid Flow Using Proper Orthogonal Decomposition (with Chitale, J., Cizmas, P., Gokaltun. S. and McDaniel, D.), Crosscutting Research Portfolio Review, DOE NETL, Pittsburgh, PA, March 22nd, 2017.
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31. Microscopic Characterization of Cu-Ni-rich Bridges in Alnico Alloys (with Fan, M., Liu, Y., Jha, R., Schwartz, J. and C.C. Koch, C.C.) 13th Joint MMM-Intermag Conference, San Diego, CA, January 11-15, 2016.

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35. *Multi-Objective Optimization of Micro Pin-Fin Arrays for Cooling of High Heat Flux Electronics (with Reddy, S.R.), ASME IMECE, paper 54166, Houston, TX, November 13-19, 2015.
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51. *A Comparison of Particle Filters Applied to the Heat Transfer Coefficient Estimation in Internal Combustion Engines (with Estumano, D.C., Hamilton, F.C., Colaco, M.J., Leiroz, A.J.K., Carvalho, R.N., Orlande, H.R.B.), 11th World Congress of Computational Mechanics – WCCM XI, Barcelona, Spain, July 20-25, 2014.
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76. Pipeline Heating Method Based on Optimal Control and State Estimation (with Vianna, F.L.V. and Orlande, H.R.B.), 13th Brazilian Congress of Thermal Sciences and Engineering-ENCIT, Uberlandia, Minas Gerais, Brazil, December 5-10, 2010.
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289. *Generation of Optimum Three-Dimensional Computational Grids (with R. Carcaillet and S. R. Kennon), 6th GAMM Conference on Numerical Methods in Fluid Mechanics, Editors: D. Rues and W. Kordulla, Goettingen, Germany, Sept. 25-27, 1985, pp. 39-46.
290. *Inverse Design of Multiholed Internally Cooled Turbine Blades (with S. R. Kennon), International Conference on Inverse Design Concepts in Engineering Sciences (ICIDES-I), Editor: G. S. Dulikravich, Austin, TX, October 17-18, 1984, pp. 217-240.
291. *Efficient Turbomachinery Grid Generation Using Traupel's Conformal Mapping (with S. R. Kennon), 1983 ASME Applied Mechanics, Bioengineering and Fluids Conference,

Symposium on Advances in Grid Generation, Houston, TX, June 20-22, 1983, Editors: K. N. Ghia and U. Ghia, ASME FED-Vol. 5, 1983, pp. 199-204.

292. Artificial Mass Concept and Transonic Viscous Flow Equation (with P. Niederdrenk), First Army Conference on Applied Mathematics and Computing, Washington, D.C., May 9-11, 1983, pp. 259-268.
293. *Fast Generation of Three-Dimensional Computational Boundary Conforming Periodic Grids of C-type, in Numerical Grid Generation, Editor: J. F. Thompson, North Holland Publishers, The Netherlands, 1982, pp. 563-584.
294. *Numerical Calculation of Transonic Axial Turbomachinery Flows, Lecture Notes in Physics, Vol. 141, Springer-Verlag, 1981, pp. 164-169.
295. Fast Generation of Body Conforming Grids for 3-D Axial Turbomachinery Flow Calculation, Workshop on Numerical Grid Generation Techniques for Partial Differential Equations, NASA Langley, Hampton, VA, Oct. 6-7, 1980, NASA CP-2166, 1980, AIAA paper 80-0605, pp. 241-252.
296. Numerical Calculation of Steady Inviscid Full Potential Compressible Flow About Wind Turbine Blades, AIAA/SERI Wind Energy Conference, Boulder, CO, April 9-11, 1980, pp. 14-19.

**Individual Technical Papers Not in Bound Proceedings (*Refereed)**

1. Optimization Approaches for Contamination Event Identification (with Baun, S. A. and Bagtzoglou, A. C.), Second International Conference on Advanced Technologies for Homeland Security, University of Connecticut, Storrs, CT, August 12-13, 2004.
2. *Simultaneous Prediction of External Flow-Field and Temperature in Internally Cooled 3-D Turbine Blade Material (Z.-X. Han and B. H. Dennis), ASME Turbo-Expo-2000, Munich, Germany, May 8-11, 2000, ASME paper 2000-GT-0253.
3. *Optimization of Multistage Turbines Using a Through-flow Code (with Petrovic, M. V. and Martin, T. J.), ASME Turbo-Expo-2000, Munich, Germany, May 8-11, 2000, ASME paper 2000-GT-0521.
4. *Constrained Shape Optimization of Airfoil Cascades Using a Navier-Stokes Solver and a Genetic/SQP Algorithm (with B. H. Dennis and Z.-X. Han), ASME paper 99-GT-441, ASME Turbo Expo, Indianapolis, IN, June 7-10, 1999.
5. *Minimization of Coolant Mass Flow Rate in Internally Cooled Gas Turbine Blades (with T. J. Martin, Z.-X. Han and B. H. Dennis), ASME paper 99-GT-146, ASME Turbo Expo, Indianapolis, IN, June 7-10, 1999.
6. *Maximizing Multistage Turbine Efficiency by Optimizing Hub and Shroud Shapes and Inlet and Exit Conditions of Each Blade Row (with M. V. Petrovic and T. J. Martin), ASME paper 99-GT-071, ASME Turbo Expo, Indianapolis, IN, June 7-10, 1999.
7. *Aerodynamic Shape Inverse Design Using a Fourier Series Method (with D. P. Baker), AIAA Aerospace Sciences Meeting, Reno, NV, January 11-14, 1999, AIAA paper 99-0185.
8. *Three-Dimensional Aerodynamic Shape Optimization Using Genetic Evolution and Gradient Search Algorithms (with N. F. Foster and J. Bowles), AIAA paper 96-0555, AIAA Aerospace Sciences Meeting, Reno, NV, January 15-19, 1996.
9. *Shape Inverse Design and Optimization for Three-Dimensional Aerodynamics, ***Invited Lecture***, AIAA paper 95-0695, AIAA Aerospace Sciences Meeting, Reno, NV, January 9-12, 1995.
10. *A Numerical Method for Solving Cascades Inverse Problems Using Navier-Stokes Equations (with Z.-M. Wang), AIAA paper 95-0304, AIAA Aerospace Sciences Meeting, Reno, NV, January 9-12, 1995.
11. *Three-Dimensional Coolant Passage Design for Specified Temperatures and Heat Fluxes (with T. J. Martin), AIAA paper 94-0348, AIAA Aerospace Sciences Meeting, Reno, NV, January 10-13, 1994.

12. Constrained Optimization of Three Dimensional Hypersonic Vehicle Configurations (with S. G. Sheffer), AIAA Paper 93-0039, Reno, NV, January 11-14, 1993.
13. Three-Dimensional Solidification With Magnetic Fields and Reduced Gravity (with S. Lee and V. Ahuja), AIAA paper 93-0912, Reno, NV, January 11-14, 1993.
14. Solidification of Variable Property Melts Under the Influence of Low Gravity, Magnetic Fields and Electric Fields (with B. Kosovic), AIAA paper 92-0694, AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1992.
15. *Electrohydrodynamic (EHD) Flow Modeling and Computations (with S. Lee and B. Kosovic), AIAA paper 91-1469, AIAA Fluid Plasma Dynamics and Lasers Conference, Honolulu, Hawaii, June 24-26, 1991.
16. *Minimization of the Number of Cooling Holes in Internally Cooled Turbine Blades (with B. Kosovic), ASME paper 91-GT-101, ASME International Gas Turbine Conference, Orlando, FL, June 3-6, 1991.
17. *Aerodynamic Shape Design Using Stream-Function-Coordinate (SFC) Formulation, AIAA paper 91-0189, Aerospace Sciences Meeting, Reno, NV, Jan. 7-10, 1991.
18. *Aerodynamic Shape Design and Optimization, AIAA paper 91-0476, Aerospace Sciences Meeting, Reno, NV, Jan. 7-10, 1991.
19. *Magnetohydrodynamic Flow Computations in Three Dimensions (with S. Lee), AIAA Paper 91-0388, Aerospace Scienes Meeting, Reno, NV, Jan. 7-10, 1991.
20. *Performance Analysis of DMR Method for Acceleration of Iterative Algorithms (with S. Lee), AIAA paper 91-0241, Aerospace Sciences Meeting, Reno, NV, Jan. 7-10, 1991.
21. *A Criteria for Surface Velocity Specification in Aerodynamic Shape Design, AIAA paper 90-0124, AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 8-11, 1990.
22. *Accelerated Computation of Viscous, Steady, Incompressible Flows (with S. Lee), ASME paper 89-GT-45, ASME International Gas Turbine Conference, Toronto, Canada, June 4-8, 1989.
23. *Artificial Dissipation Sensors for Computational Gasdynamics (with D. J. Dorney), AIAA paper 89-0643, AIAA Aerospace Sciences Meeting, Reno, NV, January 8-12, 1989.
24. *Numerical Versus Physical Dissipation in the Solution of Compressible Navier-Stokes Equations (with D. J. Dorney and S. Lee), AIAA paper 89-0550, AIAA Aerospace Sciences Meeting, Reno, NV, January 8-12, 1989.
25. *Acceleration of Iterative Algorithms for Euler Equations of Gasdynamics (with S. Lee and D. J. Dorney), AIAA paper 89-0097, AIAA Aerospace Sciences Meeting, Reno, NV, January 8-12, 1989.
26. *A Comparative Study of Iterative Algorithms for the Euler Equations of Gasdynamics (with D. J. Dorney and K. Lee), AIAA paper 89-0114, AIAA Aerospace Sciences Meeting, Reno, NV, January 8-12, 1989.
27. *A Survey of the Reaction Rate Constants for the Thermal Dissociation and Recombination of Nitrogen and Oxygen (with L. Marraffa, T. C. Keeney, and G. S. Deiwert), AIAA Paper 88-0754, AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1988.
28. *Analysis of Numerical Dissipation Models for Transonic Full Potential Equations, AIAA paper 88-0711, AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1988.
29. *Theory of Unsteady Compressible Irrotational Flows Including Heat Conductivity and Longitudinal Viscosity (with S. R. Kennon), AIAA paper 88-0709, AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1988.
30. *A Hodograph-Based Method for the Design of Shock-Free Cascades (with A. Hassan), AIAA paper 87-0606, AIAA 30th Aerospace Sciences Meeting, Reno, NV, January 12-15, 1987.
31. *Viscous/Inviscid Computations of Transonic Separated Flows Over Solid and Porous Cascades (with C. R. Olling), ASME Paper 86-GT-235, 31st ASME Gas Turbine Conference, Dusseldorf, W. Germany, June 9-12, 1986.

32. *Inverse Design of Composite Turbine Blade Circular Coolant Flow Passages (with T. L. Chiang), ASME Paper 86-GT-190, 31st ASME Gas Turbine Conference, Dusseldorf, W. Germany, June 9-12, 1986.
33. *Polynomial Elimination Theory and Non-Linear Stability Analysis for the Euler Equations (with S. R. Kennon and D. C. Jespersen), AIAA Paper 86-0554, AIAA 29th Aerospace Sciences Meeting, Reno, Nevada, January 6-9, 1986.
34. *Inverse Design of Coolant Flow Passage Shapes with Partially Fixed Internal Geometries (with S. R. Kennon), ASME Paper 85-GT-118, 30th ASME International Gas Turbine Conference, Houston, TX, March 17-21, 1985.
35. *A Posteriori Optimization of Computational Grids (with S. R. Kennon), AIAA Paper No. 85-0483, AIAA 23rd Aerospace Sciences Meeting, Reno, Nevada, January 14-17, 1985.
36. *Common Misconceptions in the Computations of Transonic Potential Flows, ASME Paper No. 84-GT-211, 20th ASME International Gas Turbine Conference, Amsterdam, The Netherlands, June 3-7, 1984.
37. *Supercritical Cascade Flow Analysis with Shock-Boundary Layer Interaction (with P. Niederdrenk and H. Sobieczky), AIAA Paper No. 83-1752, AIAA 16th Fluid and Plasma Dynamics Conf., Denvers, MA, July 12-24, 1983.
38. *Design of Shock-Free Compressor Cascades Including Viscous Boundary Layer Effects (with H. Sobieczky), ASME Paper No. 83-GT-134, 28th International Gas Turbine Conf., Phoenix, AZ, March 27-31, 1983.
39. *A Computational Design Method for Transonic Turbomachinery Cascades (with H. Sobieczky), ASME Paper No. 82-GT-117, 27th International Gas Turbine Conference, London, Great Britain, April 18-22, 1982.

**Technical Reports**

1. Parameterized Aerospace Vehicles for Aerothermodynamic Optimization (with H. Sobieczky), DLR-Technical Note H95F-12.93, Goettingen, Germany, December 1993.
2. A Physically Consistent Model for Artificial Dissipation in Transonic Potential Flow Computations (with K. Mortara and L. Marraffa), NASA TM 100846, ICOMP-88-6, May 1988.
3. CFD02-FORTRAN Program for Accurate Analysis of Steady Compressible Airfoil and Cascade Flows Using High Order Surface Panel Method (with T. Fujinami), Computational Fluid Dynamics Group, Report UTCFD200-85, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, December 1985.
4. GSD28-FORTRAN Program for Analysis and Design of Shock-Free Transonic Airfoils and Turbomachinery Cascades Including Viscous/Inviscid Interaction (with C. R. Olling), Computational Fluid Dynamics Group, Report UTCFD, 100-85, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, September 1985.
5. WBCTG31-FORTRAN Program for Efficient Three-dimensional Computational Grid Generation for Wing-Body-Canard-Tail Realistic Aircraft Configurations (with D. M. Sommerfield), Fluid Dynamics Group of the Bureau of Engineering Research Report No. 84-100, The University of Texas at Austin, Department of Aerospace Engineering and Engineering Mechanics, November 1984.
6. Artificial Mass Concept and Transonic Viscous Flow Equation (with P. Niederdrenk), ARO Report 84-1, Jan. 1984.
7. GRID3C-Computer Program for Generation of C-Type Multilevel, Three-Dimensional, Boundary Conforming Periodic Grids, NASA CR 167846, March 1982.
8. Fast Generation of Three-Dimensional Computational Boundary Conforming Periodic Grids of C-type, NASA CR 165596, June 1982.

9. CAS22-FORTRAN Program for Fast Design and Analysis of Shock Free Airfoil Cascades (with H. Sobieczky), NASA CR 3507, January 1982.
10. GRID30-Computer Program for Generation of Multilevel, Three-Dimensional, O-type Boundary Conforming Computational Grids, NASA TP 1920, September 1981.
11. Shockless Design and Analysis of Transonic Blade Shapes (with H. Sobieczky), NASA TM 82611, June 1981.
12. Numerical Calculation of Transonic Axial Turbomachinery Flows, NASA TM 81544, June 1980.
13. WIND-Computer Program for Calculation of Three-Dimensional Potential, Compressible Flow About Wind Turbine Rotor Blades, NASA TP 1729, October 1980.
14. CAS2D-FORTRAN Program for Nonrotating, Blade-to-Blade, Steady, Potential Transonic Cascade Flows, NASA TP 1705, July 1980.
15. Numerical Calculation of Steady Inviscid Full Potential Compressible Flow About Wind Turbine Blades, NASA TM 81438, April 1980.
16. Finite Volume Calculation of Transonic Potential Flow Through Rotors and Fans (with D. A. Caughey), FDA-80-03 Report, Mech. and Aerospace Eng. Dept., Cornell University, March 1980.

**Published Book Reviews**

1. Magnetofluddynamics in Channels and Containers (by U. Mueller and L. Buehler), Sringer-Verlag, Berlin, 2001, 210 pp, Applied Mechanics Reviews, Vol. 55, no. 1, January 2002, pp. B14.
2. A History of Aerodynamics and Impact on Flying Machines (by John D. Anderson, Jr.), McGraw Hill, 1998, 496 pp., Applied Mechanics Reviews, Vol. 51, no. 7, July 1998, pp. B61-B62.
3. Computational Grids: Generation, Adaptation, and Solution Strategies (by G. F. Carey), Taylor & Francis, Bristol, PA 1997, 496 pp., Applied Mechanics Reviews, Vol. 51, no. 3, March 1998, pp. B23.
4. Molecular Gas Dynamics and the Direct Simulation of Gas Flows (by G. A. Bird), Oxford Engineering Science Series, Vol. 42, New York, 458 pp., Applied Mechanics Reviews, Vol. 49, no. 4, April 1996, pp. B49-B50.
5. Numerical Solution of Partial Differential Equations (by K. W. Morton and D. F. Mayers), Cambridge UP, NY, 1994, 227 pp., Applied Mechanics Reviews, Vol. 48, No. 9, September 1995, pp. B122.
6. Computational Methods in Physics and Engineering (by S. S. M. Wong), Prentice-Hall, NJ, 1992, 677 pp., Applied Mechanics Reviews, Vol. 46, No. 5, May 1993, pp. B69.
7. Heat Conduction Using Green's Function (by J. V. Beck, K. D. Cole, A. Haji-Sheikh, B, Lithouki), Hemisphere, NY, 1992, 523 pp., Applied Mechanics Reviews, Vol. 45, No. 9, September 1992, pp. B128-B129.
8. Boundary Element Methods for Two-Dimensional Contact Problems (by G. Karami), Springer, NY, 1989, 243 pp., Applied Mechanics Reviews, Vol. 43, No. 6, June 1990, pp. B129.
9. Boundary Elements (by C. A. Brebbia and J. Dominguez), McGraw-Hill, NY, 1989, 292 pp., Applied Mechanics Reviews, Vol. 42, No. 7, July 1989, pp. B113.
10. Engineering Fluid Mechanics, 3rd ed. with separate solutions manual (by J. A. Roberson and C. T. Crowe), Houghton Mifflin, Boston, MA, 1985, 979 pp., Applied Mechanics Reviews, Vol. 39, No. 7, July 1986, pp. 1035.
11. Compressible Fluid Flow (by M. A. Saad), Prentice-Hall, Englewood Cliffs, NJ, 1985, 560 pp., Applied Mechanics Reviews, Vol. 38, No. 12, December 1985, pp. 1661.
12. Fundamentals of Gas Turbine Engines (by W. W. Bathie), Wiley, NY, 1984, 385 pp., Applied Mechanics Reviews, Vol. 38, No. 3, Sec. 1, March 1985, pp. 276-277.

13. A Mathematical Method for Design of Turbine Blade Cascades for Small Subsonic Mach Numbers (by M. Ruzicka and L. Spacek), Monographs and Memoranda no. 29, Nat. Research Institute for Machine Design, Bechovice, Czechoslovakia, 1981, 121 pp., Applied Mechanics Reviews, Vol. 36, No. 1, Jan. 1983, pp. 121-122.

**Other Technical Publications**

1. Inverse Design Methods in Internal Fluid Mechanics, Lecture Notes written by G. S. Dulikravich for a one-day course delivered at the United Technologies Research Center (UTECA/NMT), Hartford, CT, March 1988.
2. Hydraulics and Fluid Mechanics Research at Ecole Polytechnique Federal de Lausanne (with E. F. Brown), ONR ESNIB 87-02, pp. 59-61.
3. The Aerodynamic Inverse Problem, ASE/EM Department Lecture Notes No. 83-02 written by W. Chin (edited by G.S. Dulikravich), University of Texas at Austin, Dec. 1983.
4. Design Aspects of Transonic Aerodynamics, ASE/EM Department Lecture Notes No. 83-01 written by H. Sobieczky (edited by G. S. Dulikravich), University of Texas at Austin, Sept. 1983.

**Plenary, Keynote and Invited Lectures at Conferences**

1. *Keynote Lecture,* ICIPE2024, Buzios, Brazil, June 23-28*, 2024.*
2. Plenary Lecture, IIPP-XIII, Novosibirsk, Russia, April 12-20, 2021 (online).
3. *Plenary Lecture,* IPDO2019, Tianjin, China, September 24-26, 2019.
4. *Zienkiewicz Lecture,* MAFELAP 2019, Brunnel University, U.K., June 17-21, 2019.
5. *Plenary Lecture,* ASME IMECE2017, Tampa, FL, Nov. 3-9, 2017.
6. *Invited Lecture,* ASME IMECE 2017, Tampa, FL, Nov. 3-9, 2017.
7. *Keynote Lecture*, CONEM214 - National Congress of Mechanical Engineering, Uberlandia, Brazil, August 10-15, 2014.
8. *Invited Lecture, ThermaComp2014*, Bled, Slovenia, June 2-4, 2014.
9. *Plenary Lecture, EUROGEN2013*, Las Palmas de Gran Canaria, Canary Islands, Spain, October 7-9, 2013.
10. *Plenary Lecture*, International Conference on Inverse Problems and Related Topics, Southeast University, Nanjing, China, October 21-26, 2012.
11. *Invited Lecture*, High Fidelity 3D Multiscale Materials Modeling and Experimental Analysis Workshop, ARMY ERDC, Vicksburg, MS, Aug. 2-3, 2011.
12. *Best Paper Award by AMS Technical Committee*, Symposium at the 2011 ASME International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), Washington, DC, August 28-31, 2011.
13. *Keynote Lecture,* 13th Brazilian Congress of Thermal Sciences and Engineering-ENCIT, Uberlandia, Minas Gerais, Brazil, December 5-10, 2010.
14. *Plenary Lecture*, International Conference on Computational Methods, Zhangjiajie, P. R. China, November 19-21, 2010.
15. *Keynote Lecture,* IPDO2010-Inverse Problems, Design and Optimization Symposium, Joao Pessoa, Brazil, August 25-27, 2010.
16. *Invited Lecture*, Panel on Bioheat Transfer (org: Kahlen, F.-J.), 14th International Heat Transfer Conference - IHTC, Washington, D.C., August 7-13, 2010.
17. *Plenary Lecture*, Second International Workshop on Computational Inverse Problems and Applications, Beijing, P. R. China, July 12 – July 15, 2010.
18. *Keynote Lecture*, Energy and Thermal Sciences Symposium at COBEM, 20$^{th}$ International Congress of Mechanical Engineering, Gramado, Brazil, November 15-20, 2009.

19. *Invited Lecture*, ECCOMAS – Computational Methods for Coupled Problems in Science and Engineering, Fira, Santorini Island, Greece, May 25-28, 2005.
20. *Invited Lecture*, 10th Brazilian Congress of Thermal Sciences and Engineering – ENCIT2004, Rio de Janeiro, RJ, Brazil, November 29 - December 3, 2004.
21. *Invited Lecture*, mini-symposium on "Inverse Problems in Engineering Mechanics", 6th World Congress on Computational Mechanics, Beijing, China, Sept. 5-10, 2004.
22. *Invited Lecture*, mini-symposium on "Computational Electro-magneto-hydro-dynamics", 6th World Congress on Computational Mechanics, Beijing, China, Sept. 5-10, 2004.
23. *Keynote Lecture*, International Thermal Science Seminar - ITSS II, ASME-ICHMT-ZSIS, Bled, Slovenia, June 13-16, 2004.
24. *Keynote Lecture,* ASME Summer Heat Transfer Conference, Las Vegas, NV, July 21-23, 2003.
25. *Keynote Lecture*, mini-symposium on "Computational Treatment of Inverse Problems in Mechanics" at the 5th World Congress on Computational Mechanics, Vienna, Austria, July 7 – 12, 2002.
26. *Invited Lecture*, minisymposium on "Evolutionary Algorithms in Engineering Optimization", at the 5th World Congress on Computational Mechanics (WCCM-V), Vienna, Austria, July 7 – 12, 2002.
27. *Invited Lecture*, EUROGEN 2001 - Evolutionary Methods for Design, Optimization and Control with Applications to Industrial Problems, Athens, Greece, Sept. 19-21, 2001.
28. *Invited Lecture*, Mini-Symposium on Inverse Problems - State of the Art and Future Trends, XXIV Brazilian Congress on Applied and Computational Mathematics, Sept. 10-13, 2001, Belo Horizonte, Brazil.
29. *Invited Lecture*, 3rd International Conference on Inverse Problems in Engineering (3icipe): Theory and Practice, Editor: K. Woodbury, Port Ludlow-Puget Sound, WA, June 13-18, 1999.
30. *Invited Lecture*, Advanced Technology in Experimental Mechanics - ATEM97, Wakayama City, Osaka, Japan, July 25-26, 1997.
31. *Invited Lecture*, BETECH '97 - 9th International Conference on Boundary Element Technology, Knoxville, TN, April 9-11, 1997.
32. *Invited Lecture,* 10th Seminar of Applied Math., Budva, Yugoslavia, May 29-31, 1995.
33. *Invited Lecture*, AIAA Aerospace Sciences Meeting, Reno, NV, January 9-12, 1995.

## 4. RESEARCH

**Areas of Expertise**

1. Multi-Disciplinary (Aero-Thermo-Structural-Electro-Magnetics) Analysis, Inverse Design, and Optimization
2. Hybrid Single-Objective and Multi-Objective Optimization Algorithms and Response Surface Metamodels
3. Methods for Accelerating Iterative Algorithms for Solution of Systems of Partial Differential Equations
4. Electro-Magneto-Hydrodynamic Flows and Phase Change: Mathematical Modeling, Numerical Simulation and Design Optimization
5. Design Optimization of 3D Cooling Topology for Objects Subjected to High Heat Fluxes
6. Turbomachinery Aerodynamics, Heat Transfer, and Elasticity Simulation, Inverse Design and Optimization
7. Non-Destructive Evaluation Algorithms Using Thermal and Elasticity Boundary Conditions

8. Aerodynamic Shape Design Optimization of Supersonic Low Boom Passenger Airplanes
9. Multi-Objective Evolutionary Design Optimization of Chemistry of Arbitrary Metallic Alloys
10. Multi-Objective Constrained Optimization/Discovery of New Molecular Structures
11. Computational Simulation and Optimization of Conjugate Cooling Protocols for Living Organs Destined for Long Distance Transportation to Transplantation Sites

**Current Research Interests**

1. Development of graphically interactive modular software for fluid dynamics-thermal-elasticity-electric-magnetic-chemistry multi-disciplinary analysis, inverse design, and constrained multi-objective evolutionary design optimization accounting for uncertainties in a distributed parallel computing environment
2. Development of optimized control algorithms for using electric, magnetic and thermal fields in convective heat transfer with phase change
3. Optimization of realistic three-dimensional flight vehicle configurations for minimized aerodynamic drag, maximum lift/drag ratio, and minimized aerodynamic surface heating
4. Non-destructive inverse determination of temperature-dependent and spatially varying thermal conductivity and specific heat of solids
5. Non-destructive detection of voids and cracks inside solid objects with over-specified thermal boundary conditions
6. Development of methods for acceleration of iterative algorithms for integration of large systems of quasi-linear partial differential equations on highly clustered non-orthogonal computational grids using Krylov subspaces
7. Development of hybrid multi-objective constrained evolutionary optimization algorithms
8. Development of fast multi-dimensional response surface algorithms for very large number of variables
9. Inverse parameter identification algorithms for large number of parameters
10. Design optimization of multi-layer graphene-based heat spreading coatings for very high heat flux loads with hot spots
11. Computation of turbulent, three-dimensional, multi-phase flows with heat transfer and chemistry
12. Proper orthogonal decomposition methods for accelerating computations of multiphase flows
13. Inverse design and optimization of two-and-three-dimensional branching coolant flow network topologies for conjugate cooling/heating of arbitrary shaped configurations with thermally-dependent properties
14. Inverse methods for determining variable convective heat transfer coefficients on inaccessible surfaces
15. Inverse determination of strengths and locations of heating sources inside arbitrarily shaped objects based on temperature and heat flux measurements on the boundaries
16. Optimization of time-variation of thermal boundary conditions during constrained unsteady cooling of human organs with specified maximum allowed thermal stresses
17. Development of algorithms for design of molecules of new refrigerants having multiple desired functionalities (minimized GWP, flammability, toxicity and maximized thermodynamic efficiency)
18. Inverse determination of modulus of elasticity spatial distribution using boundary measurements
19. Development of a method for achieving desired orientations and concentrations of micro-fibers in composites
20. Development of optimization algorithms for determining optimum thermal treatment protocols for alloys

21. Multi-objective optimization of concentrations of alloying elements in arbitrary alloys and metallic glasses
22. Multi-objective design optimization of winglets and bladelets on propeller type wind turbine blades
23. Design optimization of grooved projectiles for maximum stability and minimum drag
24. Feasibility study of causing self-destruction of large cyclones and hurricanes
25. Simultaneous interaction of Earth's EM fields, ocean currents and hurricane dynamics

**Grants and Contracts**

Development of a Computer Program for the Finite Volume Computation of Full Potential Three-dimensional Transonic Axial Turbomachinery Flows (P. I.) (NRC-NAS-NASA, June 1, 1979-June 30, 1980). $20,000

Development of a Computer Program for the Finite Volume Computation of Full Potential Three-Dimensional Transonic Radial Turbomachinery Flows (P. I.) (Universities Space Research Association-NASA Lewis Research Center, Nov. 9, 1980-May 9, 1982). $49,050

Development of a Transonic Cascade Flow Analysis Code Using Viscous/Inviscid Coupling Concepts (P. I.) (NASA Lewis Research Center: (Sept. 1, 1982-August 31, 1983). $59,989

Analytical and Numerical Investigation of Nonunique Solutions of the Full Potential Equation in the Case of Shocked Transonic Flows (P. I.) (University of Texas at Austin, Sept. 1, 1982-Aug. 31, 1983). $3,000

Development of a Design Computer Program for Low Noise Shock-Free Cavitating Hydrofoils P. I.) (Univ. of Texas at Austin - Univ. Res. Inst.: May 11, 1983-Aug. 31, 1983. $3,000

Computational Grid Generation for Wing-Body-Canard-Tail Configuration (P. I.) (Lockheed-Georgia Co.: Dec. 1, 1983-Aug. 31, 1984. $9,000

The Inverse Design of Internally Cooled Turbine Blades (P. I.) (University of Texas at Austin - University Research Institute: Dec. 21, 1983 - Aug. 31, 1984). $4,250

Aerodynamic Analysis Package for AQUILA-Type Remotely Piloted Vehicle (P. I.) (Lockheed-Austin: Aug. 1, 1984 -December 31, 1984). $9,938

Optimum Acceleration Factors for Iterative Solution of Linear and Non-Linear Systems, (Co-P. I. with D. M. Young), (AFOSR: Dec. 1, 1984-Nov. 31, 1986). $137,999

Three-Dimensional Transonic Potential Flow Prediction About Complete High Wing Configuration (P. I.) (Lockheed-GA, Co.: Jan. 15, 1985-May 31, 1985). $3,500

Optimum Relaxation Factors for Fast Iterative Solution of Navier-Stokes Equations (P. I.) (NASA: May 1, 1985-Sept. 30, 1985). $7,000

Generation of Optimal Three-Dimensional Computational Grids (P. I.) (Lockheed-Georgia, Co., (Sept. 1, 1985 - Aug. 31, 1986). $12,000

Generation of Composite Solution-Adaptive Computational Grids (P. I.) (NASA: March 1, 1986-Feb. 28, 1988). $30,000

Physical Modeling and Computations of Hypersonic Flows (P. I.) (NASA: April 1, 1986-March 31, 1988). $80,000

Feasibility Study of Optimized Cooling Container for Living Tissue Banking (P. I.) (Pennsylvania Research Corp.: June 1, 1986 - May 31, 1987). $14,697

Generalized Non-Linear Minimal Residual (GNLMR) Method for Optimal Multi-Step Iterative Algorithms (P. I.) (AFOSR: Jan. 15, 1987 - Jan. 14, 1988). $56,980

Solution Adaptive 3-D Optimized Composite Computational Grid Generation with Applications to Turbomachinery and Reacting Flows (P. I.) (Allison Gas Turbine Company: January 1, 1987-December 31, 1988) $18,000

International Conference of Inverse Design Concepts and Optimization in Engineering Sciences (P. I.) (ONR: July 1, 1987 - Dec. 31, 1987). $20,000

International Conference on Inverse Design Concepts and Optimization in Engineering Sciences (P. I.) (ONR: July 1, 1987 - Jan. 31, 1988). $20,000

Generalized Non-Linear Minimal Residual (GNLMR) Method for Acceleration of Explicit Algorithms or Systems of Nonlinear Partial Differential Equations (P. I.) (AFOSR: Jan. 15, 1988 - Oct. 14, 1988). $48,871

Radiation Modeling and Dissipation Effects in Hypersonic Flow Computations (P. I.) (NASA: May 1,1989-April 30, 1991). $ 25,000

Three-Dimensional Unsteady Turbulent Thermoviscous Two-Phase Modeling of Volcanic Jets and Direction Blasts Including Radiation Effects Over Realistic Topography (Co-P.I. with B. Voight) (NSF: June 15, 1990 - Nov. 30, 1992). $17,700

Inverse Design and Optimization of High Bypass Jet Engine Inlet-Cowl Configuration (P. I.) (NASA: Sept. 15, 1990 - Dec. 31, 1991). $21,757

Reliability Enhancement of Navier-Stokes Codes Through Convergence Acceleration (Co-P.I. with C. L. Merkle) (NASA: June 15, 1991 - Sept. 30, 1994). $445,000

Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-III) (P. I.) (NSF: Sept. 1, 1990 - Dec. 31, 1991). $20,000

Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-III) P. I.) (ONR: Sept. 1, 1990 - Dec. 31, 1991). $20,000

Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-III) (P. I.) (NASA: Sept. 1, 1990 - Dec. 31, 1991). $20,000

Modeling Flow and Heat Transfer of Particulate Food Suspensions During Holding Tube Sterilization (Co-P.I. with C. Zuritz) (Penn State: July 1, 1992 - June 30, 1995) $100,000

Analysis of Regeneration Cooling of Rocket Engine Combustors (Co-P.I. with C. Merkle) (NASA: July 1, 1992 - Oct. 1, 1993) $53,000

Optimization of Hypersonic Vehicle Shapes for Minimized Heating and Aerodynamic Drag (P. I.) (NASA: Dec. 1, 1992 - Nov. 30, 1993) $40,000

Multidisciplinary Inverse Design and Optimization in Propulsion Systems: Phase I (P.I.) (NASA: October 1, 1993 - March 31, 1994) $50,000

Electromagnetic Field Effects in Semi-Conductor Crystal Growth (Co-Investigator) (NASA: Sept. 15, 1994 - Sept. 14, 1996) $100,000

Multidisciplinary Inverse Design and Optimization of Turbine Blades - Supplement I (P.I.) (NSF: January 1, 1996 - December 31, 1996) $5,000

Grant from Aluminum Company of America (ALCOA) Foundation (P.I.) (July 1, 1996 - June 30, 1997) $7,500

Multidisciplinary Inverse Design and Optimization of Turbine Blades - Supplement II (P.I.) (NSF: January 1, 1997 - December 31, 1997) $5,000

Multidisciplinary Inverse Design and Optimization of Turbine Blades - Supplement III (P.I.) (NSF: September 1, 1997 - December 31, 1997) $10,000

Grant from Aluminum Company of America (ALCOA) Foundation (P.I.) (Aug. 15, 1997 – Aug. 14, 1998) $10,000

Multidisciplinary Inverse Design and Optimization of Turbine Blades - Supplement IV (P.I.) (NSF: January 1, 1998 - December 31, 1998) $5,000

Multidisciplinary Inverse Design and Optimization of Turbine Blades (P.I.) (NSF: January 1, 1996 - December 31, 1998) $234,704

Grant for Graphically Interactive Multidisciplinary Design Optimization of Hypersonic Flight Vehicles – Phase I (P.I.) (Lockheed Martin: August 5, 1998 – December 31, 1998) $11,333

Grant for Graduate Student Researchers Program (GSRP) (P.I.) (NASA: July 1, 1997 – December 31, 1998) $33,000

Multidisciplinary Analysis & Optimization of MAGLIFTER Systems – I (P.I.) (LLNL: January 1, 1998 - December 31, 1998) $43,000

Multidisciplinary Analysis & Optimization of MAGLIFTER Systems – II (P.I.) (LLNL: April 26, 1999 – July 15, 1999) $13,500

Grant for Graphically Interactive Multidisciplinary Design Optimization of Hypersonic Flight Vehicles – Phase II (P.I.) (Lockheed Martin: January 1, 1999 – July 31, 1999) $20,000
Numerical Simulation and Optimization of Unsteady Flow-Fields in Thermoacoustic Refrigeration Systems (P.I.) (PSU-ARL/Navy: January 15, 1999 – July 31, 2000) $60,000
Aero-Thermo-Structural Design Optimization of Cooled Turbine Blades (P.I.) (NASA: November 27, 1996 - November 26, 1999) $294,320
Metamodel-Based Integration Technology for Multidisciplinary Design (Co-P.I. with R. Barton) (NSF: May 1, 1997 - April 30, 2000) $284,269
Aerodynamic Analysis, Inverse Shape Design & Optimization of Cradle-Rail Maglifter Systems: Phase II (P.I.) (LLNL: August 1, 1999 - January 31, 2000) $40,000
Computational Thermoacoustics and Distributed Parallel Processing (Co-P.I.) (PSU-ARL/Navy: August 15, 1999 – May 15, 2000) $33,000
Analysis and Design Optimization of a CVD Reactor Flow Regulation Chamber (P.I.) (Millipore Corp.: June 1, 2000 – December 31, 2000) $15,000
Helicopter H-V Performance Prediction Through Flight Path Optimization (P.I.) (Bell Helicopters Textron: June 19, 2000 – January 15, 2001) $5,000
Finite Element Analysis of Head and Neck Temperature Cooling Profiles (Co-P.I. with R. Eberhart) (Medtronic/Physio-Controls Corporation: March 1, 2000 – Dec. 31, 2001) $46,400
Research in Robust and Efficient Computational Methods for Partial Differential Eqs. Arising in Fluid Flows and Electromagnetics (P.I.) (NSF: Aug. 1, 2000 - July 31, 2003) $103,089
Stochastic Multi-Objective Optimization of Heat and Corrosion Resistant Alloy Properties (P.I.) (DoE: January 1, 2002 – December 31, 2004) $175,855
Alloys-by-Design Strategies Using Stochastic Multi-Objective Optimization (P.I.) (ARO: Aug. 15, 2002 – Dec. 31, 2005) $302,973
A Helical Turbine System for Wind and Hydraulic Energy Recovery (Co-P.I. with V. Dulgheru) (CRDF and MRDA: April 1, 2003 – March 31, 2005) $80,000
U.S.-Brazil International Symposium: Inverse Problems, Design and Optimization (IPDO) Symposium, March 2004, Rio de Janeiro, Brazil (P.I.) (NSF) (February 1, 2004 – January 31, 2005) $25,000
Shell Formulation for Coupled Eulerian-Lagrangian Calculations (P.I.) (DoD-PET: June 1, 2005 – May 31, 2006) $43,500
Strategies for 3D Mesh Generation for Polycrystalline Materials (P.I.) (HPTi - High Performance Technologies, Inc.: January 1, 2006 – June 30, 2006) $6,474
Hybrid Robust Multi-Objective Evolutionary Optimization Algorithm (P.I.) (AFOSR: March 1, 2006 – November 30, 2008) $293,940
Enhancements to ZAPOTEC – I (P.I.) (DoD-PET: June 1, 2006 – May 31, 2007) $44,500
Multi-Objective Optimization of Bulk Metallic Glasses (co-P.I.) (ARO: July 25, 2006 – Dec. 31, 2009) $299,721
Co-sponsorship of International Symposium on Inverse Problems, Design and Optimization (IPDO-2007) (P.I.) (ARO: April 1, 2007– August 31, 2007) $5,000
Co-sponsorship of International Symposium on Inverse Problems, Design and Optimization (IPDO-2007) (P.I.) (AFOSR: April 1, 2007 – October 31, 2007) $10,000
Enhancements to ZAPOTEC – II (P.I.) (DoD-PET: June 1, 2007 – May 31, 2008) $43,500
Multi-Objective Optimization and Inverse Design of Corrosion-Resistant Aluminum Alloys (P.I.) (NAVY/STTR Phase I – Touchstone Research Lab.: July 17, 2008 – Feb. 1, 2009) $35,000
Multi-Objective Optimization of Corrosion Resistant Aluminum Alloys (P.I.) (NAVY/SBIR Phase I – Touchstone Research Lab.: September 1, 2009 – December 31, 2009) $33,000
CNPq-Science Without Borders Program-Visiting/Exchange Scholarship – Brazil/UFRJ/COPPE (P.I.) (September 1, 2012 – August 31, 2015) $173,000
Direct and Inverse Design Optimization of Magnetic Alloys with Minimized Use of Rare Earth Elements (P.I.) (AFOSR/BRI: September 1, 2012 – October 31, 2015) $674,966

Multi-Disciplinary Design Optimization of Multi-Floor Micro-Electronics Cooling – Phase I (P.I.) (DARPA/GaTech: November 21, 2013 – April 30, 2016) $95,600
Reduced Order Methods Based on Multiphase Computational Fluid Dynamics (co-P.I.) (NETL/DoE: Sept. 1, 2014 – Aug. 31, 2017) $250,000
Multi-Disciplinary High Performance Computing and STEM Education (co-P.I.) (US Department of the Army: September 1, 2016 – August 31, 2017) $497,701
Multi-Scale Analysis of Cooling Protocols for Human Hearts (P.I.) (NSF-EAGER: July 15, 2016 – July 14, 2018) $100,000
Adaptive Aerostructures for Revolutionary Civil Supersonic Transport – MDO Study (P.I.) (Texas A&M University/NASA: June 15, 2017 – June 14. 2022) $505,000
Health Management of Hypersonic Aeroshell: Inverse Determination of Aero-Thermo-Mechanical State with Arrays of Internal Thin Film Sensors (P.I.) (University Consortium for Applied Hypersonics – UCAH/TAMU/DoD: April 1, 2022 – March 31, 2023) $556,000

## 5. COMMUNITY ENGAGEMENT AND PROFESSIONAL SERVICES

**Academic Services**

Department

*Florida International University*

1. Member, Thermo-Fluids Faculty Search Committee, 2021-2022
2. Co-Chair, Faculty Search Committee, 2020-2021
3. Chair, Search Committee for Three Faculty Positions, 2018
4. Member, Research Advisory Committee, 2020-present
5. Chair, Strategic Planning Committee, 2009-2011
6. Member, Tenure and Promotion Committee, 2009-present
7. Member, Graduate Studies Committee, 2009-present
8. Member, Merit Raise Committee, 2011

*The University of Texas at Arlington*

1. Member, Research Committee, 2000-2003
2. Member, Computer Committee, 2002-2003
3. Member, Promotion and Tenure Committee, 2000-2003
4. Coordinator, Invited Lecture Series, 2000-2003
5. Graduate Student Advisor – Aerospace Program, 2002-2003
6. Chair, AE Ph.D. Diagnostic Exam Committee, 2002-2003
7. Chair, AE Graduate Curriculum Committee, 2002-2003
8. Member, Distance Learning Committee, 2002-2003
9. Member, Industrial Relations Committee. 2000-2002
10. Local Organizer, South-West Mechanics Series Invited Lectures, 2002-2003

*The Pennsylvania State University*

1. Organizer, Invited Weekly Lecture Series, 1986-1987
2. Co-Organizer, Invited Lecture Series, 1988-1989
3. Co-Editor, Departmental Newspaper, 1989-1990
4. Member, Computer Coordination Committee, 1986-1999
5. Member, Graduate Admissions Committee, 1987-1988, 1990-1999
6. Member, Graduate Academic Affairs Committee, 1988
7. Member, Research Committee, 1987-1988
8. Member, Space Allocation Committee, 1987-1988
9. Member, Scholarships, Awards, and Academic Dishonesty Committee, 1988, 1990-1992

10. Member, Boeing Professorship Search Committee, 1990-1991
11. Member, International Programs Committee, 1990-1991
12. Member, Faculty Search Committee, 1991-1992
13. Member, Ad hoc Committee on Graduate Courses in Fluid Mechanics, 1994-1995
14. Member, Undergraduate Curriculum Committee, 1999

College

*Florida International University*

1. Associate Member, HydRIS, Hydrosystems Research, Information and Solutions Institute at FIU
2. Member, Search Committee for Department of Civil and Environmental Engineering Chairperson, 2004
3. Member, Search Committee for Faculty of Civil and Environmental Engineering, 2005
4. Chair, College Committee on Computational Science and Engineering, 2004-2005
5. Member, Advisory Committee on the new Construction Engineering Program, 2005
6. Member, Search Committee for Department of Civil and Environmental Engineering faculty, 2006
7. Member, Tenure and Promotion Committee, 2013-2014

*The Pennsylvania State University*

1. Member, Computational Fluid Dynamics Studies, 1986-1995
2. Member, Excellence in Engineering Graduate Student Fellowship Committee, 1987
3. Member, PSES Award Selection Committee, 1990
4. Member, NASA -PSU Center for Space Propulsion, 1991-1999
5. Chairman Committee on Research Initiative Grant Program, 1990
6. Member, Composites Manufacturing Consortium, 1989
7. Member, Internet Resources Advisory Committee, 1991
8. Organizer, Multidisciplinary Design Optimization (MDO) Interest Group, 1993-1999
9. Member, Center for Gas Turbines and Power, 1993-1999
10. Member, Fluid Mechanics Ad Hoc Coordination Team, 1995-1999

*The University of Texas at Austin*

1. Member, Texas Institute for Computational Mechanics - TICOM, 1982-1985
2. Director, TICOM Computing Laboratory, 1985
3. Member, The Fluid Dynamics Group, 1982-1985
4. Member, Center for Aeronautical Research, 1984-1985
5. Member, Ad hoc Committee - Henry Beckman Resources Conservation Award, 1985

University

*Florida International University*

1. Member, Search Committee for Technical Director of Applied Research Center, 2005-2006
2. Member, HCET-DOE Performance review Committee, 2005
3. Member, Advisory Board for FIU-Applied Research Center, 2006.

*The University of Texas at Arlington*

1. Member, Faculty Senate, 2002-2003.
2. Director, MAIDO Institute, 2002-2003.
3. Member, Center for Numerical Simulation and Modeling, 2003
4. Team Leader, President's Cost Savings Study Group, 2003

*The Pennsylvania State University*

1. Senior Member, Graduate Faculty, 1986-1999
2. Member, International Resources Advisory Committee, 1991
3. Member, Center for Food Manufacturing, 1997-1999
4. Member, Graduate Faculty Council, 1997-1999
5. Member, Graduate Faculty Council Graduate Research Committee, 1997-1999

6. Member, Vice-Provost's Task Force on Postdoctoral Fellows, 1999
7. Member, Faculty Senate, 1999

**Service to the Community**

1. Member, NSF review panel, Washington, DC, 2024.
2. Member, NSF/DEMS program proposals review panel, Washington, DC, April 2017
3. Member, NSF Research Centers Program site evaluation visit team, May 2016
4. Member, NSF Bio-Fluid Dynamics & Thermal Transport program proposals review panel, Washington, DC, Dec. 2011
5. Member, NSF Bio-Fluid Dynamics program proposals review panel, Washington, DC, April 2010
6. Member, NASA Microgravity Processing proposals review panel, Washington, DC, Nov. 2008
7. Member, Mansfield Rotary Club, Mansfield, TX, 2001-2003
8. Member, Technical Club of Dallas, Arlington, TX, 2000-2003
9. Member, NSF Heat Transfer proposals review panel, Dec. 1997
10. Member, National Research Council Eng. Committee - National Academy of Sciences, February 1991

**Professional Meetings and Sessions Organization/Involvement**

1. "3rd International Online Conference on Metals", member of the Conference Scientific Committee for Session 6: Computational Metallurgy, AI, and Multiscale Modeling, October 12-14, 2026 – online.
2. "MAT2025 - 3rd Global Meet on Materials Science & Nanoscience", member of the Organizing Committee, Dubai, UAE, October 20-22, 2025.
3. "Applied Science 2025 - 5th International Conference on Applied Science & Engineering", member of the Organizing Committee, Amsterdam, Netherlands, June 26-27, 2025.
4. "Materials 2025 - 8th Edition of International Conference on Materials Science and Engineering", member of the Organizing Committee, Rome, Italy, March 10-12, 2025.
5. "BIODEVICES 2025 -18th International Conference on Biomedical Electronics and Devices", member of International Program Committee, Porto, Portugal, Feb. 20-22, 2025.
6. "MSME 2025 - 6th International Conference on Materials Science and Manufacturing Engineering", member of the Program Committee, Sydney, Australia, Jan. 22-25, 2025.
7. "AEROFORUM2024 – 4th International Forum on Aerospace and Astronautics", member of the Organizing Committee, Budapest, Hungary, Nov. 18-20, 2024.
8. "EMET 2024 - The 4th International Conference on Energy Material and Energy Technology", member of Technical Program Committee, Haikou, China, Nov. 18-20, 2024.
9. "MAGNETISM2024 - Global Congress on Magnetism and Magnetic Materials", member of the Scientific Committee, Barcelona, Spain, November 7-9, 2024.
10. "MAT 2024 - 7th International Conference on Materials Science and Engineering", member of the Organizing Committee, Baltimore, MD, October 28-30, 2024.
11. "World Congress on Material Science and Engineering," member of the Organizing Committee, Dubai, UAE, October 14-15, 2024.
12. "IOGP 2024 - 3rd Edition of International Conference on Oil, Gas, and Petroleum Engineering", member of the Scientific Committee, Rome, Italy, September 19-21, 2024.

13. “ThermaEComp2024 – 6th International Conference on Computational Methods for Thermal and Energy Problems”, member of the Advisory Committee, Budva, Montenegro, September 9 – 11, 2024.
14. “GSERSE2024 - Global Summit and Expo on Renewable and Sustainable Energies”, member of the Organizing Committee, Kuala Lumpur, Malaysia, August 19-21, 2024.
15. “ICIPE2024 - 11th International Conference on Inverse Problems in Engineering: Theory and Practice”, member of International Scientific Committee, Atlântico Búzios Convention & Resort, Búzios, Rio de Janeiro, Brazil, June 23-28, 2024.
16. “SMAG-2024 - Magnetism and Magnetic Materials Summit”, member of the Organizing Committee, Singapore, June 6–7, 2024.
17. “ISSON2024 - International Summit on Semiconductors, Optoelectronics and Nanostructures”, member of the Organizing Committee, Prague, Czech Republic, May 29-31, 2024.
18. “MAGNETISMMEET2024 - 3rd International Meet on Magnetism and Magnetic Materials”, member of the Scientific Committee, Osaka, Japan, April 15-17- 2024.
19. “Materials 2024 - 6th International Conference on Materials Science and Engineering”, member of the Organizing Committee, Singapore, March 18-20, 2024.
20. “IS-AII 2024 - 2024 International Conference on Artificial Intelligence Innovations”, member of the Technical Program Committee, March 8-10, 2024.
21. “BIODEVICES 2024 -17th International Conference on Biomedical Electronics and Devices”, member of International Program Committee, Rome, Italy, Feb. 21-23, 2024.
22. “MSME2024 - 5th International Conference on Materials Science and Manufacturing Engineering”, member of the Organizing Committee, Nanyang Technological University, Singapore, January 18-20, 2024.
23. “CMAEE 2023 - 2nd International Conference on Mechanical, Automation and Electrical Engineering”, member of Technical Program Committee, Chengdu, China, December 15-17, 2023.
24. “EMET2023 - 4th International Conference on Energy Material and Energy Technology”, member of the Technical Program Committee, Wuhan, China, December 19-21, 2023.
25. “GCMMM2023 - Global Congress on Magnetism and Magnetic Materials”, member of the Scientific Committee, London, UK, August 19-12, 2023.
26. “ICCM2023 -14th International Conference on Computational Methods”, member of the International Scientific Advisory Committee, Ho Chi Minh City, Vietnam, Aug. 6-10, 2023.
27. “ISPEE2023 – International Summit on Power and Engineering”, member of the Organizing Committee, Paris, France, June 12-14, 2023.
28. “MathSciCon2023 - International Conference on Materials Science & Engineering”, member of the Organizing Committee, Rome, Italy, March 27-29, 2023.
29. “MechResCon2023 - International Conference on Mechanical & Automotive Engineering”, member of the Organizing Committee, Rome, Italy, March 23-25, 2023.
30. “ICMERR 2022 - 7th International Conference on Mechanical Engineering and Robotics Research, Krakow, Poland, December 9-11, 2022.
31. “EMET2022 - Third International Conference on Energy Material and Energy Technology”, member of Technical Program Committee, Sanya, China, December 9-11, 2022.

32. “2nd International Forum on Aerospace and Aeronautics – Forum 2022,” conference committee member, Valencia, Spain, November 17-19, 2022.
33. “IOGP 2022 - International Conference on Oil, Gas and Petroleum Engineering (Hybrid Event)”, member of the Organizing Committee, Orlando, FL, October 21-22, 2022.
34. “SES 2022 - Annual Technical Meeting of the Society of Engineering Science: Symposium on CFD for Engineering Applications”, member of the Organizing Committee, College Station, TX, Oct. 16-19, 2022.
35. “ICMN 2022 - International Conference on Material Science and Nanotechnology”, member of the Organizing Committee, Rome, Italy, October 3-5, 2022.
36. “GCMMM2022 - Global Congress on Magnetism and Magnetic Materials”, member of the Organizing Committee, Paris, France, August 25-27, 2022.
37. “GMMMM2022 - Global Meet on Mechanical and Mechatronics Engineering”, member of the Organizing Committee, Paris, France, August 22-24, 2022.
38. “GMPOWER2022 - Global Meet on Power and Energy Engineering”, member of the Organizing Committee, Paris, France, August 22-24, 2022.
39. “GSEMM2022 - 2nd Global Summit and Expo on Magnetism and Magnetic Materials”, member of the Organizing Committee, Copenhagen, Denmark, June 13-15, 2022.
40. “ECCOMAS2022 - 8th European Congress on Computational Methods in Applied Sciences and Engineering”, co-organizer (with Orlande, H.R.B., Colaco, M.J., Bulinski, Z.) of Minisymposium on Inverse Problems, Design & Optimization in Heat Transfer, Oslo, Norway, June 5-9, 2022.
41. “MAGNETISMMEET-2022 - International Meeting on Magnetism and Magnetic Materials”, member of the Organizing Committee, Tokyo, Japan, April 18-20, 2022.
42. “LOD2021 - 7th International Online & Onsite Conference on Machine Learning, Optimization, and Data Science”, member of the Program Committee, Grasmere, Lake District, England, UK, October 4-8, 2021.
43. “Aerospace-2021 - 2nd International Conference and Exhibition on Aerospace & Aeronautical Engineering”, member of the Organizing Committee, Lyon, France, Sept. 27-29, 2021.
44. “ATDMAE 2021 - 5th International Conference on Advanced Technologies in Design, Mechanical and Aeronautical Engineering”, member of the Advisory Committee, Amsterdam, Netherlands, August 25-27, 2021.
45. “CHT21 – 8th International Symposium on Advances in Computational Heat Transfer”, member of the International Scientific Committee, Rio de Janeiro, Brazil, Aug. 16 - 19, 2021.
46. “GSEMMM-2021 - Global Summit and Expo on Magnetism and Magnetic Materials”, member of the Organizing Committee, Paris, France, June 17-19, 2021.
47. “2D Printing-2021 - Global Summit on 3D Printing & Additive Manufacturing”, member of the Organizing Committee, Paris, France, June 14-16, 2021.
48. “IPMS-2021 - 10th International Conference Inverse Problems: Modeling and Simulation”, member of the International Program Committee, Mellieha, Malta, May 16-22, 2021.
49. “ICMEA 2020 - 7th Annual International Conference on Material Engineering and Application”, member of Technical Organizing Committee, Xi'an, China, Dec. 18-19, 2020.
50. “ICMEM2020 - 3rd annual International Conference on Mechanical Engineering and Materials”, member of Technical Program Committee, Chengdu, China, Nov. 20-21, 2020.

51. "GSEMME-2020 - Global Summit and Expo on Mechanical and Mechatronics Engineering", Organizing Committee Member, Lisbon, Portugal, September 1-2, 2020.
52. "Inverse Problems, Design and Optimization in Heat Transfer – Minisimposium MS81 at 14th WCCM ECCOMAS congress", MS81 co-organizer, Paris, France, July 19-24, 2020.
53. "LOD 2020 - 6th International Conference on Machine Learning, Optimization & Data Science", member of the Program Committee, Certosa di Pontignano (Siena), Tuscany, Italy, July 13-17, 2020.
54. "Mechanical 2020 - 3rd World Congress on Mechanical and Mechatronics Engineering, member of the Organizing Committee, Manchester, U.K., May 11-12, 2010.
55. "IPDO2019 - Inverse Problems, Design and Optimization Symposium", IPDO2019 honorary co-chair of the Symposium, Tianjin, China, September 24-26, 2019.
56. "LOD 2019 - 5th International Conference on Machine Learning, Optimization & Data Science", member of the Program Committee, Certosa di Pontignano (Siena), Tuscany, Italy, September 10-13, 2019.
57. "European Advanced Materials Congress", member of the Scientific Advisory Board Committee, Stockholm, Sweden, August 11-14, 2019.
58. "ICCM2019 - 10th International Conference on Computational Methods", member of the International Scientific Advisory Committee, Singapore, July 9-13, 2019.
59. "Global Staunch Congress on Material Science & Technology", member of the Organizing Committee, Amsterdam, Netherlands, June19-20, 2019.
60. "IPM2019- 5th International Conference on Inverse Problems Methods", member of the Scientific Advisory Board, Kombornia, Poland, May 22-24, 2019.
61. "World Congress on Functional Materials and Nanotechnology", member of the Scientific Advisory Board, Valencia, Spain, May 13-14, 2019.
62. "EngOpt 2018 – 6th International Conference on Engineering Optimization", member of the International Scientific Committee, Lisbon, Portugal, September 17-19, 2018.
63. "LOD 2018 - 4th International Conference on Machine Learning, Optimization & Data Science", member of the Program Committee, Volterra (Pisa), Tuscany, Italy, September 13-16, 2018.
64. "PhyCS 2018 – International Conference on Physiological Computing Systems", member of International Program Committee, Madrid, Spain, July 28-29, 2017.
65. "Materials San Diego 2018", member of the Organizing Committee, San Diego, CA, August 29-31, 2018.
66. "ICCM2018 - The 9th International Conference on Computational Methods", member of the International Scientific Advisory Committee, Rome, Italy, August 6-10, 2018.
67. "ThermaComp2018 – 5th International Conference on Computational Methods for Thermal Problems", member of the International Advisory Committee, Bangalore, India, July 9-11, 2018.
68. "IPMS-2018 - 9th International Conference Inverse Problems: Modeling and Simulation", member of the International Program Committee, Mellieha, Malta, May 21-25, 2018.
69. "CEAS2017 – Aerospace Europe Conference", member of the Scientific Committee, Bucharest, Romania, October 16-20, 2017.
70. "ACOMEN2017 – 7th International Conference on Advanced Computational Methods in Engineering", member of the Scientific Committee, Ghent, Belgium, Sept. 18-22, 2017.

71. “MOD-2017 - Third International Workshop on Machine Learning, Optimization and big Data”, member of the Program Committee, Volterra (Pisa), Tuscany, Italy, September 17-21, 2017.
72. “PhyCS 2017 – International Conference on Physiological Computing Systems”, member of International Program Committee, Madrid, Spain, July 28-29, 2017.
73. “ICCM2017 - The 8th International Conference on Computational Methods”, member of the International Scientific Advisory Committee, Guilin, Guangxi, P.R. China, July 25-29, 2017.
74. “IPM2017 - Inverse Problems in Mechanics”, member of the Scientific Advisory Board, Krasiczyn, Poland, May 31 – June 2, 2017.
75. “CMBE2017 – Computational Methods in Biomedical Engineering”, session co-chair, Pittsburgh, PA, April 10-12, 2017.
76. “BIODEVICES 2017 – 10th International Conference on Biomedical Electronics and Devices”, member of International Program Committee, Porto, Portugal, Feb. 21-23, 2017.
77. “MOD-2016 - Second International Workshop on Machine Learning, Optimization and big Data”, member of the Program Committee, Volterra (Pisa), Tuscany, Italy, Aug. 26-29, 2016.
78. “PhyCS 2017 – International Conference on Physiological Computing Systems”, member of International Program Committee, Lisbon, Portugal, July 27-28, 2016.
79. “Inverse Problems, Design and Optimization”, co-organizer of a mini-symposium MS805 at the 12th World Congress of Computational Mechanics, Seoul, Korea, July 24-29, 2016.
80. “ThermaComp2016 – 4th International Conference on Computational Methods for Thermal Problems, member of the International Advisory Committee, GeorgiaTech University, Atlanta, Georgia, USA, July 11-13, 2016.
81. “EngOpt 2016 – 5th International Conference on Engineering Optimization”, member of the International Scientific Committee, Iguassu Falls, Brazil, June 19-23, 2016.
82. “IPMS-2016 - 8th International Conference Inverse Problems: Modeling and Simulation”, member of the International Program Committee, Antalya, Turkey, May 23-28, 2016.
83. “BIODEVICES 2016 – 9th International Conference on Biomedical Electronics and Devices”, member of International Program Committee, Rome, Italy, Feb. 21-23, 2016.
84. “FAB2015 - International Symposium on Foundations and Applications of Big Data Analytics, member of the Program committee, Paris, France, August 27-28, 2015.
85. “MOD2015 – International Workshop on Machine Learning, Optimization and Big Data”, member of the Program Committee, Taormina, (Sicily), Italy, July 21 – 24, 2015.
86. “ICCM2015 - 6th International Conference on Computational Mechanics”, member of the International Scientific Committee, Auckland, New Zealand, July 15-17, 2015.
87. “BIODEVICES 2015 – 8th International Conference on Biomedical Electronics and Devices”, member of Program Committee, Angers, France, March 3-6, 2015.
88. “PhyCS 2015 – International Conference on Physiological Computing Systems”, member of International Program Committee, Angers, France, February 11-13, 2015.
89. “AEROSPATIAL 2014” - International Conference for Aerospace Sciences, Member of the Scientific Committee, Bucharest, Romania, September 18 - 19, 2014.
90. “EngOpt 2014 – 4th International Conference on Engineering Optimization”, member of the International Scientific Committee, Lisbon, Portugal, September 8-11, 2014.
91. “ICCM2014 – 5th International Conference on Computational Mechanics”, member of the International Scientific Committee, Cambridge, UK, July 28-30, 2014.

92. “Inverse Problems, Design and Optimization”, co-organizer of a mini-symposium at World Congress of Computational Mechanics, Barcelona, Spain, July 20-25, 2014.
93. “7th International Conference Inverse Problems: Modeling and Simulation (IPMS-2014)”, member of the International Program Committee, Antalya, Turkey, May 26-31, 2014.
94. “8th International Conference on Inverse Problems in Engineering (ICIPE)”, member of the Steering Committee and member of Scientific Committee, Cracow, Poland, May 12-15, 2014.
95. “BIODEVICES 2014 – 7th International Conference on Biomedical Electronics and Devices”, member of Program Committee, Angers, France, March 3-6, 2014.
96. “PhyCS 2014 – International Conference on Physiological Computing Systems”, member of International Program Committee, Lisbon, Portugal, January 7-9, 2014.
97. ”Multidisciplinary Inverse Problems, Design and Optimization Under Uncertainty”, co-organizer of the minisymposium at “Asian-Pacific Congress on Computational Mechanics – APCOM’2013”, Singapore, December 12-15, 2013.
98. “Asian-Pacific Congress on Computational Mechanics – APCOM’2013”, member of International Scientific Committee, Singapore, December 12-15, 2013.
99. “IPDO-2013 Inverse Problems, Design and Optimization Symposium”, honorary conference chairman, Albi, France, June 26-28, 2013.
100. “3rd International Conference on Inverse Problems in Mechanics of Structures and Materials - IPM 2013”, member of Scientific Advisory Board, Sieniawa-Rzeszow, Poland, April 24-27, 2013.
101. “BIOSTEC 2013 – 6th International Conference on Biomedical Eng. Systems and Technologies”, member of international committee, Barcelona, Spain, Feb. 11-14, 2013.
102. “Inverse Problems, Design and Optimization”, co-organizer of a mini-symposium at ECCOMAS 2012-European Congress on Computational Methods in Applied Sciences and Engineering, Vienna, Austria, Sept. 10-14, 2012.
103. “Inverse Problems, Design and Optimization”, co-organizer of a mini-symposium at the 10th World Congress on Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012.
104. “6th International Conference Inverse Problems: Modeling and Simulation (IP:MS 2012)”, co-chair of the conference, Antalya, Turkey, May 21-26, 2012.
105. “BIOSTEC 2012 – 5th International Conference on Biomedical Eng. Systems and Technologies”, member of international committee, Vilamoura, Algarve, Portugal, February 1-4, 2012.
106. “7th International Conference on Inverse Problems in Engineering (ICIPE)”, member of International Scientific Committee, University of Central Florida, Orlando, Florida, USA, May 4-6, 2011
107. “2nd International Cnference on Inverse Problems in Mechanics of Structures and Materials - IPM 2011”,.member of Advisory Scientific Board, Sieniawa-Rzeszow, Poland, May 4-7, 2011.
108. “6th International Conference on Inverse Problems: Identification, Design and Control”, member of the International Scientific Advisory Committee, Samara-Volgograd-Saratov-Ulianovsk-Kazan, Russia, October 15-19, 2010.
109. “EngOpt2010 - 2nd International Conference on Engineering Optimization”, member of the Advisory Board, Lisbon, Portugal, Sept. 6-9, 2010.

110. “IPDO-2010 Inverse Problems, Design and Optimization Symposium”, co-chair of the symposium, Joao Pesoa, Brazil, August 25-27, 2010. http://ipdo2010.ipdos.org/
111. “Inverse Problems in Science and Engineering”, co-organizer of a special topic area symposium at the 30th ASME Computers and Information in Engineering Conference (CIE), Montreal, Canada, August 15-18, 2010.
112. “5th International Conference Inverse Problems: Modeling and Simulation (IP:MS 2010)”, co-chair, Antalya, Turkey, May 24-29, 2010.
113. “Inverse Methods for Parameter Identification”, a mini-symposium at Fourth European Conference on Computational Mechanics (Solids, Structures and Coupled Problems in Engineering) ECCM 2010, co-organizer, Paris, France, May 16-21, 2010.
114. “Algorithms for Large Scale Multi-Objective Evolutionary Optimization”, a mini-symposium at Fourth European Conference on Computational Mechanics (Solids, Structures and Coupled Problems in Engineering) ECCM 2010, co-organizer, Paris, France, May 16-21, 2010.
115. “CSC2009-First International Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering”, member of the Editorial Board, Funchal, Madeira Island, September 1-4, 2009.
116. “Inverse Problems in Science and Engineering”, co-organizer of a special topic area symposium at the 2009 ASME International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), San Diego, CA, August 30 – September 2, 2009.
117. “Inverse Problems 2009 Symposium”, member of the Steering Committee, Michigan State University, East Lansing, MI, May 31-June 2, 2009.
118. “International Symposium on Inverse Problems in Mechanics of Structures and Materials - IPM 2009”, member of the Advisory Scientific Board, Lancut near Rzeszow, Poland, April 23-25, 2009.
119. “Inverse Problems in Science and Engineering”, co-organizer of a special topic area symposium at the 2008 ASME International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE), New York, NY, August 3-6, 2008.
120. “Metamodels for High Dimensionality Response Surfaces in Multiobjective Optimization”, co-organizer of a mini-symposium at the 8$^{th}$ World Congress of Computational Mechanics, Venice, Italy, June 30-July 5, 2008.
121. “Computational Electro-Magneto-Fluid-Dynamics”, co-organizer of a mini-symposium at the 8$^{th}$ World Congress of Computational Mechanics, Venice, Italy, June 30-July 5, 2008.
122. “New Trends for Evolutionary Optimization Methods Applied to Multidisciplinary Problems”, co-organizer of a mini-symposium at the 8$^{th}$ World Congress of Computational Mechanics, Venice, Italy, June 30-July 5, 2008.
123. “Inverse Problems for Parameter Identification”, co-organizer of a mini-symposium at the 8$^{th}$ World Congress of Computational Mechanics, Venice, Italy, June 30-July 5, 2008.
124. "EngOpt 2008 - International Conference on Engineering Optimization”, member of the Advisory Board, Rio de Janeiro, Brazil, June 1-5, 2008.
125. “International Conference on "Neural Networks and Genetic Algorithms in Materials Science & Engineering - NGMS 2008”, member of the International Advisory Committee,

School of Materials Science and Engineering (SMSE) of Bengal Engineering and Science University, India, January 9-11, 2008.

126. "Symposium on Genetic Algorithms in Materials Science and Engineering (GAMS2007) - European Materials Research Society", member of the International Scientific Committee, Warsaw, Poland, September 17-21, 2007.
127. "NSA'07 – 3rd Shanghai International Symposium on Nonlinear Science and Applications", member of the International Advisory Committee, Shanghai, P. R. China, June 6-10, 2007.
128. "5th International Conference on Inverse Problems: Identification, Design and Control", member of the International Scientific Advisory Committee, Kazan-Nizhniy Novgorod-Moscow, Russia, May 10-16, 2007.
129. "IPDO-2007 Inverse Problems, Design and Optimization Symposium", general chair and co-organizer, Miami Beach, Florida, April 16-18, 2007.
130. "11th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference", session co-chair, Portsmouth, VA, September 6-8, 2006.
131. "Computational Electro-Magneto-Fluid-Dynamics", co-organizer of a mini-symposium at the 7th World Congress of Computational Mechanics, Los Angeles, CA, July 16-22, 2006.
132. "Inverse Problems in Engineering Mechanics", co-organizer of a mini-symposium at the 7th World Congress of Computational Mechanics, Los Angeles, CA, July 16-22, 2006.
133. "International Conference on Inverse Problems: Modeling and Simulation", member of International Program and Organizing Committee, Fethiye, Turkey, June 7-12, 2006.
134. "III European Conference on Computational Solid and Structural Mechanics", member of the Scientific Committee, Lisbon, Portugal, June 5-8, 2006.
135. "Inverse Engineering" co-organizer of a mini-symposium and session chair of two sessions at the III European Conference on Computational Solid and Structural Mechanics, Lisbon, Portugal, June 5-8, 2006.
136. "EUROGEN05", member of the International Correspondents Committee, Munich, Germany, September 12-14, 2005.
137. "5ICIPE -5th International Conference on Inverse Problems in Engineering: Theory and Practice", member of the International Scientific Committee, University of Cambridge, United Kingdom, July 11-15, 2005.
138. "2nd Shanghai International Symposium on Nonlinear Science and Applications -2005 (Shanghai NSA'05)", member of the International Advisory Committee, Shanghai and Wuxi, P. R. China, June 3 - June 7, 2005.
139. "6th PAMIR Conference on Fundamental and Applied MHD", member of the Scientific Committee, Riga, Latvia, June 27-July 1, 2005.
140. "ENCIT 2004 – The Brazilian Congress of Thermal Engineering and Sciences", member of the International Scientific Committee, Rio de Janeiro, Brazil, Nov. 30 – Dec. 4, 2004.
141. "Mini-Symposium on Computational Electro-Magneto-Fluid-Dynamics at the 6th World Congress of Computational Mechanics", organizer, Beijing, P. R. China, Sept. 5-10, 2004.
142. "Mini-Symposium on Numerical Methods for Multi-dimensional Inverse Problems at the 6th World Congress of Computational Mechanics", organizer, Beijing, P. R. China, Sept. 5-10, 2004.
143. "International Thermal Science Seminar - ITSS II, ASME-ICHMT-ZSIS", session chair, Bled, Slovenia, June 13-16, 2004.

144. “13th Inverse Problems in Engineering Seminar”, member of the International Advisory Committee, University of Cincinnati, June 14-15, 2004.
145. “International Conference on Inverse Problems: Modeling and Simulation”, member of International Program and Organizing Committee, Fethiye, Turkey, June 7-12, 2004.
146. “Inverse Problems, Design and Optimization (IPDO) Symposium”, chairman and co-organizer, Rio de Janeiro, Brazil, March 17-19, 2004.
147. “IMECE 2003”, session chair, Washington, DC, Nov. 16-21, 2003.
148. “EUROGEN2003 - Evolutionary Computing for Design, Optimization and Control with Application to Multi-Disciplinary Industrial and Societal Problems”, member of the International Correspondents Committee, organizer of a mini-symposium on “Multi-Objective Multi-Disciplinary Evolutionary Optimisation” and a session chair, Barcelona, Spain, September 15-17, 2003.
149. “Inverse Methods”, session chair at ASME National Heat Transfer Conference, Las Vegas, NV, July 20-23, 2003.
150. “Forum on Functional Fluids at ASME/JSME Joint FEDSM”, co-organizer, Honolulu, Hawaii, July 6-10, 2003.
151. “4th International Conference on Inverse Problems: Identification, Design and Control”, member of the Conference Scientific Advisory Committee, Eupatoria, Crimea, Ukraine, July 1-5, 2003.
152. “ASME 2003 Bioengineering Summer Conference”, session chair, Key Biscayne, FL, June 26-31, 2003.
153. “Shanghai International Symposium on Nonlinear Science and Applications”, member of the International Advisory Committee, Shanghai, P. R. China, June 9-13, 2003.
154. “Symposium on Materials Processing Under the Influence of Electrical and Magnetic Fields” at the 2003 TMS Annual Meeting, co-organizer of the Symposium, San Diego, CA, March 2-6, 2003.
155. “ISIP’03 - International Symposium on Inverse Problems in Mechanics,” member of the International Scientific Committee, Nagano City, Japan, February 18-21, 2003.
156. “Sensitivity Analysis Methods”, superchair of the cluster of sessions at the 9th AIAA/ISSMO Symposium on Multidisciplinary Analysis & Optimization, Atlanta, Georgia, 4-6 Sept., 2002.
157. “Minisymposium on Computational Treatment of Inverse Problems in Mechanics”, co-organizer of the Minisymposium at the Fifth World Congress on Computational Mechanics, Vienna, Austria, July 7-12, 2002.
158. “Inverse Problems Modeling and Simulation”, member of the International Scientific Advisory Committee, Fethiye, Turkey, July 14-21, 2002.
159. “4th International Conference on Inverse Problems in Engineering: Theory and Practice (4icipe)”, member of the Scientific Committee, Rio de Janeiro, Brazil, May 26-31, 2002.
160. “21st Southeastern Conference on Theoretical and Applied Mechanics,” member of the International Scientific Advisory Committee, Orlando, Florida, May 19-21, 2002.
161. “Computational Heat Transfer in Electro-Magneto-Hydrodynamics”, session co-chair at ASME IMECE’01, New York, NY, Nov. 12-15, 2001.
162. “Inverse Problems”, session co-chair at ASME IMECE’01, New York, NY, Nov. 12-15, 2001.
163. “2nd International Conference on Computational Heat & Mass Transfer,” member of the Honorary International Advisory Board, Rio de Janeiro, Brazil, October 22-26, 2001.

164. “APCFS & ATEM’01 – Asian Pacific Conference on Fracture and Strength & International Conference on Advanced Technology in Experimental Mechanics”, member of International Committee, Sendai, Japan, October 20-22, 2001.
165. “International Conference on Computational Engineering & Sciences”, member of International Committee, Puerto Vallarta, Mexico, August 19-25, 2001.
166. 23rd International Symposium on Shock Waves, member of the local organizing committee, Fort Worth, TX, July 22-27, 2001.
167. “BETECH 2001 - 14th International Conference on Boundary Element Technology," member of the International Scientific Advisory Committee, Orlando, Florida, March 12-14, 2001.
168. “ISIP’01 - International Symposium on Inverse Problems in Mechanics,” co-chairman of the Symposium, Nagano City, Japan, February 7-10, 2001.
169. “8th AIAA/NASA/USAF/ISSMO Symposium on Multidisciplinary Analysis and Optimization”, session chair, Long Beach, CA, September 6-8, 2000.
170. “Fluid Flow and Heat Transfer”, session chair at International Conference on Computational Engineering & Sciences, Los Angeles, CA, August 21-25, 2000.
171. “Advances in Computational Heat and Mass Transfer”, co-organizer and session chair at the ASME National Heat Transfer Conference, Pittsburgh, PA, August 20-22, 2000.
172. “Inverse Thermal Problems”, co-organizer and session chair at the ASME National Heat Transfer Conference, Pittsburgh, PA, August 20-22, 2000.
173. “ISIP’2k - International Symposium on Inverse Problems in Mechanics,” co-chairman of the Symposium, Nagano City, Japan, March 7-10, 2000.
174. “Rheology and Fluid Mechanics of Non-Linear Materials VI: Electro-Magneto-Rheological Fluids,” session chair, Symposium on Rheology and Fluid Mechanics of Nonlinear Materials, ASME IMECE’99, Nashville, TN, November 14-19, 1999.
175. “BEM 21 - Boundary Element Method Conference,” member of the International Scientific Advisory Committee, Oxford, United Kingdom, August 25-27, 1999.
176. “Forum on Functional Fluids”, forum co-organizer and session chair, 1999 Joint ASME/JSME Fluids Engineering Conference, San Francisco, CA, July 18 - 23, 1999.
177. “ATEM’98 – International Conference on Advanced Technology in Experimental Mechanics”, member of organizing committee, Ube City, Yamaguchi, Japan, July 21-24, 1999.
178. “3rd International Conference on Inverse Problems in Engineering (3icIpe)”, session chair and a member of the scientific committee, Port Ludlow-Puget Sound, WA, June 13-18, 1999.
179. “BETECH '99 - 10th International Conference on Boundary Element Technology," member of the International Scientific Advisory Committee, Las Vegas, NV, June 8-10, 1999.
180. “Aeronautical Applications”, session chair at EUROGEN’99 - Evolutionary Algorithms in Engineering and Computer Science: Recent Advances and Industrial Applications, Jyvaskyla, Finland, May 30 - June 3, 1999.
181. “Symposium on Rheology and Fluid Mechanics of Nonlinear Materials – IX”, ASME IMECE’98, session chair, Anaheim, CA, November 15-20, 1998.
182. “Symposium on Computational Methods for Solution of Inverse Problems in Mechanics – Session #3”, ASME IMECE’98, session chair, Anaheim, CA, November 15-20, 1998.
183. “Multidisciplinary Inverse Problems and Optimization in Heat Transfer”, co-organizer and co-chairman of the Symposium at ASME IMECE’98, Anaheim, CA, Nov. 15-20, 1998.
184. “Multidisciplinary Inverse Problems and Optimization in Heat Transfer – Session #2”, session chair, ASME IMECE’98, Anaheim, CA, November 15-20, 1998.

185. “CFD 2.9: Design and Optimization 1”, session chair, Fourth ECCOMAS Computational Fluid Dynamics Conference, Athens, Greece, Sept. 7-11, 1998.
186. "BEM 20 - Boundary Element Method Conference,” member of the International Scientific Advisory Committee, Orlando, FL, August 19-21, 1998.
187. “Dynamic System Identification and Inverse Problems”, member of the International Scientific Advisory Committee, Moscow-St. Petersburg, Russia, May 30-June 5, 1998.
188. “ISIP '98 - International Symposium on Inverse Problems in Mechanics,” co-chairman of the Symposium, Nagano City, Japan, March 24-26, 1998.
189. “Elastic Fluids,” co-chairman of the session at ASME IMECE, Dallas, TX, Nov. 16-21, 1997.
190. "Symposium on Future of Engineering Design”, symposium organizer and chairman, Penn State University, University Park, PA, October 10, 1997.
191. "Inverse Design Problems in Heat Transfer and Fluid Flow,” co-organizer and co-chairman of the Symposium at ASME National Heat Transfer Conference, Baltimore, MD, August 10-12, 1997.
192. "Advanced Technology in Experimental Mechanics-ATEM97,” invited speaker, session chair, and member of the International Program Committee, Wakayama City, Osaka, Japan, July 25-26, 1997.
193. "BETECH '97 - 9th International Conference on Boundary Element Technology," member of the Scientific Advisory Committee, Knoxville, TN, April 9-11, 1997.
194. "Heat Transfer", session chairman at the Pan-American Congress of Applied Mechanics (PACAM-V), San Juan, Puerto Rico, January 2-4, 1997.
195. "Rheology and Fluid Mechanics of Nonlinear Materials IV: Complex Flows", session vice-chairman at ASME IMECE'96, Atlanta, GA, Nov. 17-22, 1996.
196. "Second International Conference on Inverse Problems in Engineering: Theory and Practice", member of the Scientific Advisory Committee, Nantes, France, June 1996.
197. "BETECH '96 - 9th International Conference on Boundary Element Technology," member of the Scientific Advisory Committee, Maui, Hawaii, April 24-26, 1996.
198. "3rd International Symposium on Magnetic Suspension Technology", session chairman, Tallahassee, FL, December 13-15, 1995.
199. "Symposium on Electrorheological Flows - III", session co-organizer, ASME WAM'95, San Francisco, CA, November 12-17, 1995.
200. "Conjugate Heat Transfer, Inverse Design and Optimization", session co-organizer and co-chairman, National Heat Transfer Conference, Portland, OR, August 5-9, 1995.
201. "The Seventh Inverse Problems in Engineering Seminar", member of the Organizing Committee, Columbus, OH, June 12-13, 1995.
202. "PACAM IV- Pan-American Congress of Applied Mechanics," member of the Organizing Committee, Buenos Aires, Argentina, January 3-6, 1995.
203. "Symposium on Inverse Problems in Mechanics - III", session co-chairperson, ASME WAM'94, Chicago, IL, November 6-11, 1994.
204. "Symposium on Inverse Problems in Engineering Mechanics ISIP'94," member of the International Scientific Committee, November 2-4, 1994, Paris, France.
205. "The Sixth Inverse Problems in Engineering Seminar", member of the Organizing Committee, Cincinnati, OH, June 13-14, 1994.

206. "BETECH '94 - 9th International Conference on Boundary Element Technology," member of the Scientific Advisory Committee, Orlando, FL, March 16-18, 1994.
207. "Multidisciplinary Design Optimization," session organizer and chairman at AIAA Aerospace Sciences Meeting, Reno, NV, January 10-13, 1994.
208. "Industry/Government/Penn State Workshop on Multidisciplinary Analysis, Design and Optimization in Aeropropulsion", organizer and chairman, The Pennsylvania State University, University Park, PA, November 4-5, 1993.
209. "Multidisciplinary Design Optimization," session organizer and chairman at AIAA Aerospace Sciences Meeting, Reno, NV, January 11-14, 1993.
210. "Thermal Inverse Problems - II," session co-chairman at the IUTAM Symposium on Inverse Problems in Engineering Mechanics," Tokyo, Japan, May 11-15, 1992.
211. "Third International Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-III)," conference organizer and chairman, Washington, D.C., October 23-25, 1991.
212. "Symposium on Inverse Design and Optimization in Fluid Dynamics and Heat Transfer," symposium organizer and chairman, Penn State University, University Park, PA, October 21-22, 1991.
213. "Aerodynamics II," session co-chairman at the PACAM-II, Valpareiso, Chile, Jan. 2-5, 1991.
214. "Artificial Organs," session co-chairman at the 16th Northeast Bioengineering Conference, Penn State University, PA, March 26-27, 1990.
215. "Numerical Dissipation," organizer and chairman of the invited session at the 7th International Conf. on Finite Element Methods in Flow Problems, Univ. of Alabama, Huntsville, April 3-7, 1989.
216. "Adaptive Mesh," co-organizer and co-chairman of the invited session at the 7th International Conf. on Finite Element Methods in Flow Problems, Univ. of Alabama, Huntsville, April 3-7, 1989.
217. "Heat Transfer," session chairman at the Pan-American Congress of Applied Mechanics, Rio de Janeiro, Brazil, January 3-6, 1989.
218. "Computational Fluid Dynamics," session chairman at the Conference on Hydraulic Machinery, Ljubljana, Yugoslavia, September 13-15, 1988.
219. "Wing and Airfoil Aerodynamics," session chairman at the AIAA Applied Aerodynamics Conference, Williamsburg, VA, June 6-8, 1988.
220. "Second International Conference on Inverse Design Concepts and Optimization in Engineering Sciences (ICIDES-II)," conference organizer and chairman, Penn State Univ., University Park, PA, October 26-28, 1987.
221. "Hypersonic Aerodynamics," session chairman at the AIAA Applied Aerodynamics Conference, Monterey, CA, August 17-19, 1987.
222. "Advances in Computational Fluid Dynamics," organizer and chairman of the invited session at the First World Congress on Computational Mechanics, Austin, TX, Sept. 22-26, 1986.
223. "Inverse Design and Optimization in Turbomachinery," organizer and chairman of two sessions at the ASME International Gas Turbine Conference, Dusseldorf, Germany, June 8-12, 1986.
224. "International Conference on Inverse Design Concepts in Engineering Sciences (ICIDES)," conference organizer and chairman, Univ. of Texas at Austin, October 17-18, 1984.

225. "Design Aspects of Transonic Aerodynamics," (lecturer Dr. Helmut Sobieczky), organizer of the workshop, Univ. of Texas at Austin, September 7, 1983.

**Invited Technical Presentations**

1. Invited Lecture, Aerospace Eng. Dept., Georgia Institute of Technology, Atlanta, GA, July 2024.
2. Invited Lecture, Mech. Eng. Dept., Hunan University, Changsha, P.R. China, Sept. 2019.
3. Invited Lecture, Mech. Eng. Dept., Central South University, P.R. China, Sept. 2019.
4. Invited Lecture, State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, Hunan University, Changsha, P.R. China, Sept. 2019.
5. Invited Lecture, Mech. Eng. Dept., Hebei University of Technology, Tianjin, P.R. China, Sept. 2019.
6. Invited Lecture, Mech. Eng. Dept., University of Belgrade, Belgrade, Serbia, May 2019.
7. Invited Lecture, Mech. Eng. Dept., University of Novi Sad, Novi Sad, Serbia, May 2019.
8. Invited Lecture, University of Kragujevac, Kragujevac, Serbia, May 2019.
9. Invited Lecture, Visoka Tehnicka Skola, Trstenik, Serbia, May 2019.
10. Invited Lecture, Embry-Riddle Aeronautical University, Daytona Beach, FL, Sept. 2017.
11. Invited Lecture, National Technical University of Athens, Athens, Greece, June 2017.
12. Invited Lecture, Mech. Eng. Dept., University of Belgrade, Belgrade, Serbia, May 2017.
13. Invited Lecture, Mech. Eng. Dept., University of Novi Sad, Novi Sad, Serbia, May 2017.
14. Invited Lecture, Macedonian Academy of Arts and Sci., Skopje, Macedonia, May 2017.
15. Invited Lecture, University of Bitola, Mech. Eng. Dept., Bitola, Macedonia, May 2017.
16. Invited Lecture, National Institute of Health/Office of Aging, Baltimore, MD, April 2017.
17. Invited Lecture, Mech. Eng. Dept., Rice University, Houston, TX, February 2017.
18. Invited Lecture, Aero. Eng. Dept., TAMU, College Station, TX, February 2017.
19. Invited Lecture, MAE Dept., University of Texas at Arlington, TX, August 2016.
20. Invited Lecture, Mech. Eng. Dept., University of Colorado, Denver, July 2016.
21. Invited Lecture, Mech. Eng. Dept., Colorado School of Mines, Golden, CO, July 2016.
22. Invited Lecture, Mech. Eng. Dept., University of Belgrade, Belgrade, Serbia, June 2015.
23. Invited Lecture, Mech. Eng. Dept., University of Ljubljana, Slovenia, June 2015.
24. Invited Lecture, Materials Dept., Institute Jozef Stefan, Ljubljana, Slovenia, June 2015.
25. Invited Lecture, Mech. Eng. Dept., University of Trieste, Trieste, Italy, June 2015.
26. Invited Lecture, Federal University of Rio de Janeiro/COPPE, Brazil, August 2014.
27. Invited Lecture, Mech. Eng. Dept., University of Belgrade, Belgrade, Serbia, June 2014.
28. Invited Lecture, Mech. Eng. Dept., University of Maribor, Slovenia, June 2014.
29. Invited Lecture, CAVS, Mississippi State University, Starkville, MS, October 2013.
30. Invited Lecture, Federal University of Paraiba-UFPB, Joao Pessoa, Brazil, June 2013.
31. Invited Lecture, Federal University of Rio de Janeiro/COPPE, Brazil, May 2013.
32. Invited Lecture, Federal University of Rio de Janeiro, Brazil, ME Dept., May 2013.
33. Invited Lecture, Federal University of Uberlandia-UFU, Brazil, May 2013.
34. Invited Lecture, ICES, University of Texas at Austin, Austin, TX, September 2012.
35. Lecture (by invitation only), DoD, T&E/S&E Industry/Academia Days, Atlanta, GA, Oct. 18-19, 2011.
36. Lecture (by invitation only), ONR Industry Days, Ellicott City, MD, Oct. 11-13, 2011.
37. Invited Lecture, Naval Research Laboratory, Washington, DC, Sept. 2011.
38. Invited Lecture, Army Engineering Research Center, Vicksburg, MS, August 2011.
39. Invited Lecture, Dept. of Mechanical Eng., Hong Kong University of Science and Technology, Nov. 2010.
40. Invited Lecture, School of Computer and Information Sciences, FIU, Miami, FL, Sept. 2010.

41. Invited Lecture, Mech. Eng., Universidade Federal do Rio de Janeiro - UFRJ, Rio de Janeiro, Brazil, Aug. 2010.
42. Invited Lecture, Institute of Turbomachinery, Shanghai Jiaotong University, Shanghai, P. R. China, July 2010.
43. Invited Lecture, Department of Engineering Mechanics, Tsinghua University, Beijing, P. R. China, July 2010.
44. Invited Lecture, Institute for Thermophysics, Chinese Academy of Sciences, Beijing, P.R. China, July 2010.
45. Invited Lecture, Dept of Mechanical Engineering, University of New Mexico, Albuquerque, NM, Oct. 2009.
46. Invited Lecture, Florida Energy Security Consortium, University of South Florida, Tampa, FL, Oct. 2009.
47. Lecture (by invitation only), ONR Workshop on "The Future in Combating Aircraft Corrosion - Innovative S&T Solutions", California, MD, September 2009.
48. Invited Lecture, Dept. of Aerospace Eng., Old Dominion University, Norfolk, VA, August 2009.
49. Invited Lecture, Dept. of Aerospace and Mechanical Eng., University of Oklahoma, Norman, OK, May 2009.
50. Invited Lecture, Department of Mechanical Engineering, The Petroleum Institute, Abu Dhabi, U.A.E, May 2008.
51. Invited Lecture, Department of Mathematics, University of Wyoming, Laramie, WY, April 2007.
52. Invited Lecture, Crashworthiness Program, Cranfield University, Cranfield, United Kingdom, November 2006.
53. Invited Lecture, Aerospace Eng. Dept., Iowa State University, Ames, IA, May 2006.
54. Invited Lecture, Mechanical and Materials Eng. Dept., Florida International University, FL, October 2005.
55. Invited Lecture, Dept. of Mechanical and Nuclear Eng., Penn State University, University Park, PA, June 2005.
56. Invited Lecture, Dept. of Mechanical and Aero. Eng., Cornell University, Ithaca, NY, June 2005.
57. Invited Lecture, Dept. of Mechanical Eng., Rochester Institute of Technology, NY, June 2005.
58. Invited Lecture, High Performance Technologies-Army Aberdeen Proving Grounds, Aberdeen, MD, Feb. 2005.
59. Invited Lecture, Dept. of Mechanical Eng., University of Alabama at Tuscaloosa, Tuscaloosa, AL, Oct. 2004.
60. Invited Lecture, Mechanical and Materials Eng. Dept., Florida International University, FL, October 2004.
61. Invited Lecture, General Electric Global Research Center, Niskayuna, NY, September 2004.
62. Invited Lecture, United Technologies Research Center, East Hartford, CT, August 2004.
63. Invited Lecture, Department of Mathematics, Univ. of Belgrade, Belgrade, Serbia & Montenegro, June 2004.
64. Invited Lecture, Dept. of Industrial Eng., Univ. of Novi Sad, Novi Sad, Serbia & Montenegro, June 2004.
65. Invited Lecture, NPO-Saturn Company, Moscow, Russia, June 2004.
66. Lecture, Materials Research Directorate, Wright-Patterson Air Force Base, Dayton, OH, July 2003.
67. Lecture, Army Research Office, Materials Research Directorate, Durham, NC, July 2003.

68. Invited Lecture, Mech. Aero. & Materials Science Eng., Univ. of Central Florida, Orlando, FL, June 2003.
69. Invited Lecture, Dept. of Math. & Informatics, University of Novi Sad, Novi Sad, Yugoslavia, May 2003.
70. Invited Lecture, Serbian Academy of Sciences, Mathematics Department, Belgrade, Yugoslavia, May 2003.
71. Invited Lecture, Mechanical Eng. Dept., University of Belgrade, Belgrade, Serbia &Montenegro, May 2003.
72. Invited Lecture, Mechanical Eng. Dept., Univ. of Moldavia, Chisinau, Moldavia, May 2003.
73. Invited Lecture, Mechanical and Materials Eng. Dept., Florida International University, FL, April 2003.
74. Invited Lecture, Mathematics Department, University of Texas at Arlington, Arlington, TX, March 2003.
75. Invited Lecture, L3 Communications, Greenville, TX, October 2002.
76. Invited Lecture, Mathematics Department, University of Texas at Arlington, Arlington, TX, October 2002.
77. Invited Lecture, DoE Contractors' Meeting, Albuquerque, NM, July 2002.
78. Invited Lecture, Mech. Eng. Dept., University of Maryland, College Park, MD, Dec. 2001.
79. Invited Lecture, Instituto Nacional de Pesquisas Espaciais-INPE/CTA, Sao Jose dos Campos, Brazil, Sep. 2001.
80. Invited Lecture, Mech. Eng., Universidade Federal do Rio de Janeiro - UFRJ, Rio de Janeiro, Brazil, Sep. 2001.
81. Invited Lecture, Universidade do Estado do Rio de Janeiro - UERJ, Nova Friburgo, Brazil, Sept. 2001.
82. Invited Lecture, Aero. Eng. Dept., Royal Melbourne Institute of Technology, Melbourne, Australia, May 2001.
83. Invited Lecture, Mech. Aero. & Materials Science Eng., Univ. of Central Florida, Orlando, FL, April 2001.
84. Invited Lecture, Mech. Eng. Dept., Louisiana State University, Baton Rouge, LA, March 2001.
85. Invited Lecture, Mech. Eng. Dept, Texas A & M University, College Station, TX, February 2001.
86. Invited Lecture, Siemens-Westinghouse Research Center, Orlando, FL, November 2000.
87. Invited Lecture, Nuclear Institute "B. Kidric", Vinca, Yugoslavia-Serbia, May 2000.
88. Invited Lecture, Bell Helicopter Textron, Grand Prairie, TX, April 2000.
89. Invited Lecture, Mech. Eng. Dept., Texas A & M University, College Station, TX, February 2000.
90. Invited Lecture, Lockheed Martin C., Fort Worth, TX, December 1999.
91. Invited Lecture, Mech. & Aero. Eng. Dept., Univ. of Texas at Arlington, Arlington, TX, May 1999.
92. Invited Lecture, Dept. of Mechanical and Nuclear Eng., Penn State Univ., October 1998.
93. Invited Lecture, Ebara Company HQ, Haneda, Japan, March 1998.
94. Invited Lecture, National Aerospace Laboratory - NAL, Mitaka, Japan, March 1998.
95. Invited Lecture, Hitachi Ltd., Hitachi, Japan, March 1998.
96. Invited Lecture, Dept. of Mech. Eng., Carnegie-Mellon Univ., Pittsburgh, PA, March 1998.
97. Lecture, Lawrence Livermore National Laboratories, Livermore, CA, November 1997.
98. Invited Lecture, Aero. Eng. Dept., University of Florida, Gainesville, FL, October 1997.
99. Lecture, NASA Lewis Research Center, Cleveland, OH, September 1997.
100. Invited Lecture, Virginia Commonwealth University, Richmond, VA, September 1997.
101. Invited Lecture, Dept. of Aero. & Space Eng., Tohoku University, Japan, July 1997.
102. Invited Lecture, Toshiba Corp. R & D Center, Kawasaki, Japan, July 1997.

103. Lecture, ALCOA Technical Center, ALCOA Center, PA, June 1997.
104. Lecture, National Science Foundation, Arlington, VA, March 1997
105. Invited Lecture, ALCOA Technical Center, ALCOA Center, PA, August 1996.
106. Invited Lecture, Mech. Eng. Dept., California State University, Fullerton, CA, July 1996.
107. Invited Lecture, Mech. Eng. Dept, The Johns Hopkins University, Baltimore, MD, Feb. 1996.
108. Invited Lecture, Graduate School of Eng., Kyoto University, Kyoto, Japan, August 1995.
109. Invited Lecture, Aerodynamics Research Section, Mitsubishi Heavy Indust., Nagoya, Japan, Aug. 1995.
110. Invited Lecture, Mechanical Eng. Dept., Shinshu University, Nagano, Japan, August 1995.
111. Invited Lecture, Ebara Research Company, Ebara Company, Japan, August 1995.
112. Invited Lecture, National Aerospace Laboratory - NAL, Tokyo, Japan, August 1995.
113. Invited Lecture, Mechanical Eng. Dept., Teikyo University, Utsunomiya, Japan, Aug. 1995.
114. Invited Lecture, Institute for Space and Astronautical Sciences, Sagamihara, Japan, Aug. 1995.
115. Invited Lecture, Kitagawa Industries, Tokyo, Japan, August 1995.
116. Invited Lecture, Mechanical Eng. Dept., Ashikaga Inst. of Tech, Ashikaga, Japan, Aug 1995.
117. Invited Lecture, Mechanical Eng. Dept., University of Tokyo, Tokyo, Japan, July 1995.
118. Invited Lecture, Ishikawajima-Harima Heavy Industries R & D, Tokyo, Japan, July 1995.
119. Invited Lecture, Fundamental Research Labs, NEC Corp., Tsukuba, Japan, July 1995.
120. Invited Lecture, Dept. of Aero. & Space Eng., Tohoku University, Japan, July 1995.
121. Invited Lecture, Toshiba Corp. R & D Center, Kawasaki, Japan, July 1995.
122. Invited Lecture, Mechanical Eng. Lab., Hitachi, Ltd., Tsuchiura, Japan, July 1995.
123. Invited Lecture, Mechanical Faculty, Nat. Tech. Univ. of Athens, Athens, Greece, June 1995.
124. Invited Lecture, Mechanical Faculty, Aero. Inst., Univ. of Belgrade, Yugoslavia, May 1995.
125. Lecture, Aerospace Eng. Dept., Pennsylvania State Univ., University Park, PA, March 1995.
126. Lecture, Center for Theor. and Comput. Materials Science, NIST, Gaithersburg, Feb. 1995.
127. Invited Lecture, Mechanical Eng. Dept., Univ. of Minnesota, Minneapolis, MN Jan. 1995.
128. Invited Lecture, Mechanical Eng. Dept., University of Pittsburgh, Pittsburgh. PA, Jan. 1995.
129. Invited Lecture, NLR, Amsterdam, The Netherlands, December 1994.
130. Invited Lecture, ESTEC, Noordwijk, The Netherlands, December1994.
131. Lecture, Mechanical and Aerospace Eng. Dept., Cornell Univ., Ithaca, NY, August 1994.
132. Invited Lecture, Institute for Mechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria, July 1994.
133. Invited Lecture, Institute for Fluid Mechanics and Flight Dynamics, Bucharest, Romania, June 1994.
134. Invited Lecture, Dept. of Mech. & Thermo. Eng., Univ. of Novi Sad, Novi Sad, Yugoslavia, June 1994.
135. Invited Lecture, Dept. of Math. & Computer. Sci., Univ. of Novi Sad, Novi Sad, Yugoslavia. June 1994.
136. Invited Lecture, NASA Headquarters, Washington, D. C, May 1994.
137. Invited Lecture, MDO Group, NASA Langley Research Center, Hampton, VA, March 1994.
138. Invited Lecture, ICASE, NASA Langley Research Center, Hampton, VA, March 1994.
139. Invited Lecture, Mechanical Eng. Dept., Rice University, Houston, TX, November 1993.
140. Lecture, Mechanical Eng. Dept, University of Houston, Houston, TX, November 1993.
141. Lecture, Aerospace Eng. Dept., Pennsylvania State Univ., University Park, PA, Oct. 1993.
142. Lecture, Math. Dept./Mech. Eng., Univ. of Windsor, Windsor, ONT, Canada, Sept. 1993.
143. Invited Lecture, Turbine Heat Transfer Branch, NASA LeRC, Cleveland, OH, Aug. 1993.
144. Invited Lecture, Mech.&Aero. Eng. Dep., Univ. of Central Florida, Orlando, FL, Dec. 1992.
145. Invited Lecture, Mech. Eng. Dept., University of Miami, Miami, FL, Nov. 1992.
146. Invited Lecture, Mech Eng. Dept., Seoul National Univ., Seoul, South Korea, May 1992.
147. Invited Lecture, GoldStar Company Research Center, Seoul, South Korea, May 1992.

148. Invited Lecture, NISSAN Car Company, Central Eng. Lab., Yokosuka, Japan, May 1992.
149. Invited Lecture, Inst. for Space and Astronautical Sciences, Kanagawa, Japan, May 1992.
150. Invited Lecture, NEC Corp., Fundamental Res. Lab., Tsukuba, Japan, May 1992.
151. Invited Lecture, Mech. Eng. Dept., Southern Methodist Univ., Dallas, TX, Feb. 1992.
152. Invited Lecture, Mech. Eng. Dept., Columbia Univ., New York, NY, Feb. 1991.
153. Invited Lecture, Aerospace Eng. Dept., Penn State Univ., Univ. Park, PA, Feb. 1991.
154. Invited Lecture, Siderca SAIC, Buenos Aires, Argentina, Dec. 1990.
155. Invited Lecture, Centro Atomico, Bariloche, Argentina, Dec. 1990.
156. Invited Lecture, CONICET, Santa Fe, Argentina, Dec. 1990.
157. Invited Lecture, SVUSS, Prague-Bechovice, Czechoslovakia, Aug. 1990.
158. Invited Lecture, Westinghouse R&D Center, Orlando, FL, August 1990.
159. Invited Lecture, Boeing Airplane Company, Seattle, WA, July 1990.
160. Invited Lecture, MBB, Ottobrun, F. R. Germany, May 1990.
161. Invited Lecture, Von Karman Institute for Fluid Mechanics, Brussels, Belgium, May 1990.
162. Invited Lecture, ONERA, Paris, France, May 1990.
163. Invited Lecture, SNECMA, Villaroche, France, May 1990.
164. Invited Lecture, ESTEC, Noordwijk, The Netherlands, May 1990.
165. Invited Lecture, NLR, Amsterdam, The Netherlands, May 1990.
166. Invited Lecture, Technische Hohschule Turbo. Inst., Aachen, F.R. Germany, May 1990.
167. Invited Lecture, Florida Inst. of Techn., Melbourne, FL, Mech. Eng. Dep., Feb. 1990.
168. Invited Lecture, E. G. & G and Idaho Nat. Eng. Lab., Idaho Falls, ID, July 1989.
169. Invited Lecture, AFOSR Workshop on Shape Optimization, U. of California, Berkeley, CA, May 1989.
170. Invited Lecture, ICASE, NASA Langley Research Center, Hampton, VA, March 1989.
171. Invited Lecture, Dept. of Mech. Eng., Florida Atlantic Univ., Boca Raton, Dec. 1988.
172. Invited Lecture, Dept. of Aerospace Engr., Ohio State Univ., Columbus, OH, Oct. 1988.
173. Invited Lecture, Dept. of Mech. Eng., Univ. of Texas, Austin, TX, Oct. 1988.
174. Invited Lecture, Turboinstitut, Ljubljana, Yugoslavia, Sept. 1988.
175. Lecture, Inst. for Comp. Meth. in Propulsion, NASA LeRC, Cleveland, OH, May 1988.
176. Invited Lecture, Aerospace Eng. Dept., Univ. of Colorado, Boulder, CO, January 1988.
177. Lecture, Computat. Fluid Dynamics Branch, NASA LeRC, Cleveland, OH, May 1987.
178. Invited Lecture, CFD Lecture Series, Penn State U., University Park, PA, Feb. 1987.
179. Lecture, Douglas Aircraft Company, Long Beach, CA, Dec. 1986.
180. Invited Lecture, Mathematics Department, Penn State U., University Park, PA, Oct. 1986.
181. Lecture, Comput. Fluid Dynamics Branch, NASA ARC, Moffett Field, CA, Aug. 1986.
182. Invited Lecture, Mech. and Shipbuilding Eng., Univ. of Zagreb, Yugoslavia, July 1986.
183. Invited Lecture, Turboinstitut, Ljubljana, Yugoslavia, July 1986.
184. Invited Lecture, Technical Faculty, Univ. of Novi Sad, Yugoslavia, June 1986.
185. Invited Lecture, Technical Faculty, Univ. of Rijeka, Yugoslavia, June 1986.
186. Invited Lecture, ONERA, Paris, France, June 1986.
187. Invited Lecture, Ecole Centrale Paris, Paris, France, June 1986.
188. Invited Lecture, Rolls-Royce, Ltd., Derby, England, June 1986.
189. Invited Lecture, U.S. Army Ballistic Res. Lab., Aberdeen Proving Ground, MD, Feb. 1986.
190. Invited Lecture, Mech. Eng. and Material Sci. Dept., Duke U., Durham, NC, Dec. 1985.
191. Invited Lecture, Aero. Eng. Dep., Penn State Univ., University Park, PA, November 1985.
192. Invited Lecture, Mech. Eng. Dept., Univ. of Texas, Austin, TX, October 1985.
193. Invited Lecture, Allison Gas Turbines, Indianapolis, IN, July 1985.
194. Invited Lecture, Mech. Eng. Dept., Rice Univ., Houston, TX, January 1985.
195. Invited Lecture, Mech. Eng. Dept., Univ. of California, Davis, CA, January 1985.
196. Lecture, DFVLR-AVA, Goettingen, F. R. Germany, June 1984.
197. Lecture, Lockheed-Georgia Co., Marietta, GA, February 1984.

198. Lecture, DFVLR-AVA, Goettingen, F. R. Germany, August 1983.
199. Lecture, General Dynamics Co., Fort Worth, TX, April 1983.
200. Lecture, Lockheed-Georgia Co., Marietta, GA, February 1983.
201. Lecture, Hydronautics, Inc., Laurel, MD, November 1982.
202. Lecture, Mech. Eng. Dept., Univ. of Texas, Austin, October 1982.
203. Invited lecture, Brown-Boveri Co., Baden, Switzerland, August 1982.
204. Invited lecture, Scuola di Ingegneria Aerospaziale, Politecnico di Torino, Turin, Italy, June1982.
205. Invited lecture, Instituto di Macchine, Universita di Genova, Genoa, Italy, June 1982.
206. Lecture, DFVLR-AVA, Goettingen, F.R. Germany, May 1982.
207. Invited lecture, Mech. Eng. Dept., Case-Western Reserve Univ., Cleveland, OH, Feb. 1982.
208. Invited lecture, Mech. Eng. Dept., Univ. of Michigan, MI, February 1982.
209. Invited lecture, ASE/EM Dept., Univ. of Texas, Austin, TX, February 1982.
210. Invited lecture, Mech. Eng. Dept., Virginia Polytechnic Institute, VA, January 1982.
211. Lecture, Williams International, Walled Lake, MI, October 1981.
212. Invited lecture, Dept. of Aerospace Engr., Univ. of Arizona, Tuscon, AZ, July 1981.
213. Invited lecture, Aerospace Engr. Dept., University of Stuttgart, F.R. Germany, Oct. 1980.
214. Invited lecture, DFVLR, Cologne, F.R. Germany, September 1980.
215. Invited lecture, DFVLR, Braunschweig, F.R. Germany, September 1980.
216. Invited lecture, DFVLR-AVA, Goettingen, F.R. Germany, August 1980.

**Consulting Activities**

1. Universita di Genova, Genova, Italy
2. McDonnell-Douglas Corp., St. Louis, MO
3. Lockheed Missiles and Space Co., Inc., Austin, TX
4. General Electric Company, Evandale, OH
5. Rolls-Royce Ltd., Derby, England
6. AVCO Research Labs, Everett, MA
7. ONERA, Chatillon, France
8. Institute of Physics, Belgrade, Yugoslavia
9. Douglas Aircraft Co., Long Beach, CA
10. Turboinstitut, Ljubljana, Yugoslavia
11. ESTEC, Noordwijk, The Netherlands
12. AGARD, Paris, France
13. EG & G, Inc., Idaho Falls, ID
14. Westinghouse Science & Technology Center, Pittsburgh, PA
15. University of Trieste, Trieste, Italy
16. Cranfield University, Cranfield, U.K.
17. TriCircle, Inc., Atlanta, GA
18. TKelvin, Inc., Henderson, NV