DAN GABRIEL CACUCI

US Citizen

CURRENT BUSINESS ADDRESSES

University of South Carolina
Department of Mechanical Engineering
300 Main Street
Columbia, SC 29201
Tel: 803.777.5316 (office); 919.909.9624 (cell)
Email: cacuci@cec.sc.edu

ACADEMIC EDUCATION

Doctor of Philosophy (Ph.D., 1978), Columbia University, New York Applied Physics and Nuclear Engineering;

Master of Philosophy (M. Phil., 1977), Columbia University, New York Applied Physics and Nuclear Engineering;

James D. Merriman, Jr. Memorial Award (1973); Columbia University; Awarded to the graduate student with the highest grades in engineering.

Youth Foundation Merit Scholarship (1972, 1973, 1974, 1975); New York

Master of Science (M.Sc., 1973), Columbia University, New York Nuclear Science and Engineering

Columbia University Merit Fellowship (1972-74) and Citation for Outstanding Achievements as a Graduate Student (1973);

Polytechnical Institute of Bucharest (1966-1970), Bucharest, Romania
Engineering Physics; *Merit Fellowship* (1966-1970);

PROFESSIONAL EXPERIENCE: A Brief Summary

1. Teaching and Research as Full Professor at Leading Universities: *University of Tennessee (Part-Time, 1983-1988), University of Virginia (Distinguished Professor, 1993-2000), University of California at Santa Barbara (Tenured, 1988-1990), University of Illinois at Urbana-Champaign (Tenured, 1990-1993), University of Michigan (Visiting, 1995-2000), University of California at Berkeley (Adjunct, 2001-2007), Royal Institute of Technology Stockholm (Visiting, 2003), National Institute for Nuclear Science and Technology (INSTN) in Saclay (France, 2007-2012), University of Karlsruhe (Ordinarius Chaired Professor, life-time appointment since 1992) North Carolina University State University (Tenured, 2010-12); University of South Carolina (Endowed Chair and Director, SmartState Center of Economic Excellence in Nuclear Science and Energy; 2012-present); Imperial College of London (Honorary Professor, Principal Research Fellow, 2013-present); Bangor University, UK (Honorary Professor).*

2. Management and Research at Leading National Research Centers: *Section Head, Oak Ridge National Laboratory (1976-1988); Institute Director, Nuclear Research Center Karlsruhe (1993-2004), Scientific Director, Nuclear Energy Pole of the Commissariat a l'Energie Atomique (2005-2009).*

3. Leadership and Management of International Multidisciplinary Research Projects: *General Coordinator of the EURATOM-Integrated Project NURESIM (European Platform for Nuclear Reactor Simulation), with 21 European partner organizations; General Coordinator (January 2004 – September 2005) of the Specific Support Action (SSA) for establishing a European Nuclear Fission Technology Platform (ENFTP), with 21 European partner organizations; General Coordinator (January 2006 – December 2008) of the Coordinated Action (CA) for establishing a Sustainable Nuclear Fission Technology Platform (SNF-TP), with 22 European partner organizations.*

4. Areas of Scientific Expertise: *analysis of large-scale physical/engineering systems; large-scale scientific computations; nuclear reactor physics, dynamics and safety; sensitivity analysis, data assimilation and predictive uncertainty quantification for large-scale systems.*

5. The Editor of **"Nuclear Science and Engineering –The Research Journal of the American Nuclear Society",** since 1984.

CHRONOLOGICAL EMPLOYMENT HISTORY

January 2012 – Present

SmartState Endowed Chair Professor and Director, SmartState Center of Excellence in Nuclear Science and Energy.
Department of Mechanical Engineering, University of South Carolina, Columbia, SC., USA.

Extramural funding: Consortium for Advanced Simulation of LWR (CASL, DOE Energy Hub, ca. 400 K$. 2012); DOE-NEUP (450 K$, 2012-16); Gen4Energy, Inc. (450 K$, 2013-14); DOE-NNSA (1.4 M$, 2013-16); DOE-NNSA (1.2 M$, 2017-19). Consultant: LANL; LBNL, Gen4Energy, Inc.

Teaching: 2 Graduate-level courses: “EMCH 755: Advanced Nuclear Reactor Theory” and “EMCH 770: Predictive Modeling: Combining Experiments with Computations” (a new course I created).

August 2016 – Present

Honorary Professor,
School of Electronic Engineering, College of Physical and Applied Sciences, Bangor University, UK.

March 1984 – Present

The Editor, Nuclear Science and Engineering (NS&E) Am. Nuc. Soc. (Associate and Acting Editor: March 1984 – June 1986)

NS&E is the senior publication for original research and development in the nuclear field. Issued monthly by the American Nuclear Society since 1956, this research journal is widely recognized worldwide as the outstanding publication covering refereed research in all aspects of nuclear science and engineering.

May 2013 – December 2016

Honorary Professor, Principal Research Fellow,
Department of Earth Science and Engineering, Imperial College of London, UK.

January 2010 – January 2012
Professor

Department of Nuclear Eng., North Carolina State University, Raleigh, NC., USA.

Extramural funding: Consortium for Advanced Simulation of LWR (CASL), DOE Energy Hub (850 K$ during 2010-11); Consultant: LANL, CEA/France.

June 2007 – June 2011

Founding Director and Professor, The International School in Nuclear Engineering, Doctoral Program, The National Institute for Nuclear Science and Technology (INSTN), Saclay, France

August 1998 – Present

Founding Director (1998 – 2005) and Honorary Director (2005 – present)
The Frédéric Joliot & Otto Hahn International Summer School on Nuclear Reactors: Physics, Fuels and Systems.

April 2002 – Dec 2009

- **Cadre Supérieur CEA, Directeur de Recherche, and Directeur Scientifique** ("Chief Scientist") **of the Nuclear Energy Directorate** (Direction de l'Énergie Nucléaire, DEN) **of the Commissariat à l'Énergie Atomique (CEA), France.**

- The DEN comprised over 5 500 scientists and engineers located within the CEA-owned national French research centers at Saclay, Cadarache, Marcoule, and Grenoble, with an annual budget of ca. 1.4 Billion Euros. I was a member of the DEN Directorate (CODEN), External Affairs Committee (CORES), Personnel Planning Committee (CRM), etc. I directed the staff of the DEN/Scientific Directorate (comprising 2 DS-deputy directors, and DS-scientific representatives in each of the CEA national nuclear laboratories), and led all phases of strategic research planning within DEN. I represented the DEN for scientific policies across the entire CEA (under the leadership of the Administrator General and the High Commissioner of CEA). I was responsible for the following major activities: (i) organizing scientific peer reviews (national and international) of DEN activities; (ii) organizing (together with the National Institute for Nuclear Science and Technology, INSTN) the nuclear engineering education in France (Génie Atomique, Formation Nucléaire de Base, International Graduate School in Nuclear Engineering); (iii) selecting the doctoral and post-doctoral research thesis topics, candidates, and assignments within DEN; (iv) proposing exceptional scientists for nomination to the highest CEA-scientific title of "Directeur de Recherche"; (v) selecting exceptional scientific proposals for special funding ("seed money"); (vi) editing and publishing the DEN scientific monographs. I held top-secret military clearance ("habilitation secret defence") in France and USA.

October 1992 –March 2013

Ordinarius Chaired Professor (C-4) and Director

Institute for Nuclear Technology and Reactor Safety, University of Karlsruhe, Germany.

This was the highest level of university professorship in Germany. The official appointment is as lifetime high-level civil servant ("Beamte auf Lebenszeit") of the Ministry for Culture, Education, and Research of the State of Baden-Württemberg. I was responsible for managing the institute (equivalent to a department at a US University), including extramural research contracts with European industry and the European Union (EURATOM) of over 2 million Euros annually. I performed research, teaching, and conducted master- and doctoral-level dissertations leading to the titles of "Dr. Ing." and "Diplom-Ingineur" (MS-equivalent), respectively, in the following research areas: fission and fusion reactor safety; heat and mass transfer; particle and radiation transport phenomena; sensitivity/uncertainty analysis, computational methods for large-scale systems; direct numerical simulation of two-phase

flows. I have supervised over 50 PhD students during this period. In October 2006, the University of Karlsruhe was declared “Germany’s Elite University” (along with the University of Munich) by *Germany’s Federal Government, Germany’s Research Foundation (Deutsche Forschungsgemeinschaft – DFG) and Germany’s Science Council*.

October 1992 – December 2004

Director, Institute for Reactor Safety (IRS) at the Research Center Karlsruhe (FZK), Germany.

I directed the research, development and demonstration/deployment (RD&D) as well as the administrative activities of over 150 permanent staff scientists and engineers, and an annual budget of over 40 Million Euros. In addition, I personally performed research in the following areas: experimental, theoretical and numerical investigations of design basis accidents and hypothetical severe accidents in fission and fusion reactors (e.g., steam explosions, fluid-structure interactions, plasma disruptions, etc.); multiphase flows (including chemical reactions) in macro- and micro-channels; safety, physics and dynamics of nuclear reactor; sensitivity and uncertainty analysis of large-scale systems; reliability analysis; applied and computational physics. I have managed extramural research contracts with industry, other research centers, universities, and the European Union.

January 2001 – December 2006

Adjunct Professor, Department of Nuclear Engineering, University of California, Berkeley, USA.

May 2000 – January 2005

Permanent Representative of the Federal Republic of Germany to the Nuclear Science Committee (NSC) of OECD/NEA (Nuclear Energy Agency).

May 2003 – December 2003

Visiting Professor, Department of Energy Technology, the Royal Institute of Technology (KTH), Stockholm, Sweden.

November 1995 – November 2000

Visiting Professor, Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor, MI 48109-2104, USA

July 1993 – July 2000

Distinguished Professor of Engineering and Applied Science, General Faculty, School of Engineering and Applied Science, University of Virginia, Charlottesville, VA 22903, USA.

August 1990 – May 1993

Professor (Tenured) , Department of Nuclear Engineering, University of Illinois, Urbana-Champaign, IL 61801, USA.

April 1988 – December 1990

Professor (Tenured), Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, CA 93106, USA.

February 1986 – April 1988

Section Head II and Acting Associate Division Director, Systems Analysis and Shielding Section, Engineering Physics and Mathematics Division (EPMD), Oak Ridge National Laboratory (ORNL), Oak Ridge, TN 37830, USA.

January 1987 – April 1988

Professor (part-time), Department of Mathematics, University of Tennessee, Knoxville, TN 37996, USA.

April 1983 – April 1988

Professor (part-time) (Associate Professor: April 1983 – December 1984), Department of Nuclear Engineering, University of Tennessee, Knoxville, TN 37996, USA.

September 1984 – February 1986

Section Head I, Systems Analysis and Shielding Section, EPMD, ORNL.

December 1980 – September 1984

Senior Scientist and Group Leader (L & Q-Clearances)
Mathematical Physics Applications Group, EPMD, ORNL.

November 1977 – December 1980

Project Leader, Engineering Physics Division, ORNL.

September 1976 – October 1977

Lead Engineer, EBASCO SERVICES, INC., New York, NY 10048, USA

September 1975 – September 1976

Nuclear Engineering Associate III

Brookhaven National Laboratory, Upton, Long Island, NY 11973, USA

May 1972 – September 1976

Graduate Research and Teaching Assistant

Columbia University, New York, NY 10027, USA

PROFESSIONAL AND ACADEMIC HONORS

The ANNUAL DISTINGUISHED LECTURE, Korean Advanced Institute of Science and Technology (KAIST), "*Predictive Modeling: Combining Computations with Experiments to obtain Optimally Predicted Results with Reduced Uncertainties*", Daejeon, Korea, June 2, 2016.

The ARTHUR HOLLY COMPTON Award in EDUCATION, 2011

This award is named after the Nobel Prize Winner Arthur H. Compton and was established in 1966 by the American Nuclear Society to recognize and encourage outstanding contributions to education in nuclear science and engineering.

The citation reads:

"For his exceptional contributions to nuclear engineering education through his supervision of many doctoral students, writing and editing of landmark books (especially the Handbook of Nuclear Engineering), and promotion of international schools in nuclear engineering."

MEMBER of the EUROPEAN ACADEMY OF ARTS AND SCIENCES, 2006

The European Academy of Arts and Sciences is sponsored by the European Parliament and is headquartered in the Republic of Austria. It comprises 8 sections (currently including over 20 Nobel laureates), as follows: (i) humanities; (ii) medicine, (iii) arts; (iv) natural sciences; (v) social sciences, law and economics; (vi) technical and environmental sciences; (vii) world religions

DOCTOR HONORIS CAUSA, Technical University of Moldavia, Chisinau, Republic of Moldova, 2003

The citation reads, in part:

"For exceptional scientific achievements, for extending the scientific cooperation relationships between the Technical University of Moldavia and the research institutions in Germany, for essential contributions for developing the higher education in engineering and training of scientific staff".

THE DIPLOMA OF HONOR of the Presidium of the National Academy of Sciences of the Republic of Moldavia, Chisinau, Republic of Moldavia, 2003

THE "AIR PRODUCTS DISTINGUISHED LECTURER", Pennsylvania State University, University Park, PA, USA, 2003

- The "Air Products Distinguished Lecturers" are "internationally recognized scholars, invited to share their wisdom with the faculty and students of the Pennsylvania State University."

DOCTOR HONORIS CAUSA, Technical University of Civil Engineering, Bucharest, Romania, 2002

The citation reads (in part): *"In homage to his personality, who has passionately contributed to the international progress of nuclear science, engineering and technology... As a recognition of his role in the development of education in the United States of America, Germany, and Romania… As an exceptional appreciation of his contributions towards internationally promoting Romania's image… For his continuing contributions towards developing the scientific and technical cooperation between the Technical University of Civil Engineering Bucharest and the University and Research Center Karlsruhe".*

The EUGENE P. WIGNER DISTINGUISHED REACTOR PHYSICIST Award, 2001

This award is named after Eugene Paul Wigner, Nobel Prize Winner and co-founder of nuclear reactor physics, and is awarded by the American Nuclear Society to provide recognition to persons, from any nation, who have made outstanding contributions to advance the field of nuclear reactor physics.

The citation reads:

"For his pioneering work on the conception, development and interdisciplinary applications of sensitivity analysis to nonlinear dynamical problems in reactor physics and related areas, and for his outstanding leadership in reactor physics as a scientist, educator, technical manager, and senior journal editor in nuclear science and engineering."

COMMANDER OF ROMANIA'S NATIONAL ORDER "FAITHFUL SERVICE", 2000

Awarded by Romania's President (Emil Constantinescu) on Romania's National Day, December 1, 2000;

The citation reads: *"For especially outstanding contributions towards the world-wide promotion of Romanian culture and democracy."*

The GLENN SEABORG MEDAL, 2000

Awarded at the joint American Nuclear Society/European Nuclear Societies Meeting in Washington, DC., November 2000.

The Seaborg Medal is named after Glenn Seaborg (American chemist, discoverer of Plutonium and Nobel Prize Winner), and was established by the American Nuclear Society in 1983 to provide high-level recognition for sustained technical accomplishments contributing to peaceful uses of atomic energy. The Seaborg Medal is an award to be made to an individual in recognition of outstanding scientific or engineering research achievements associated with the development of peaceful uses of nuclear energy. This award is to recognize and honor excellence in technical achievements worthy of international recognition sustained over a period of time. Nominations for candidates for the award are invited by letters to presidents of major scientific and technical societies, heads of appropriate U.S. and foreign government agencies, and other appropriate individuals. Nominees may be from any nation.

The citation reads: *"For outstanding accomplishments in furthering nuclear knowledge and the progress of mankind."*

KREITMAN FOUNDATION SENIOR VISITING FELLOW, 2000
Ben-Gurion University of the Negev, Israel

The Kreitman Foundation Fellowship brings, for short-term or extended periods, Nobel Laureates, distinguished academics, and leading personalities in the arts and in public life. These programs were superintended by an International Board of Overseers chaired by Sir Aaron Klug, President of the Royal Society, and a local Steering Committee chaired by Yehudit Birk of the Israel Academy of Sciences.

The responsibility of a Senior Kreitman Visiting Fellow is to speak with the members of the Society of Kreitman Fellows, an honor society, on a topic that would be germane to a group of exceptional people from various Departments throughout the University. Additional presentations include a general lecture under the auspices of the Faculty of Engineering Sciences and Natural Sciences, and a seminar focusing on an issue of current research.

DOCTOR HONORIS CAUSA, University "OVIDIUS" of Constantza, Romania, 2000.

The citation reads: *"For Outstanding Contributions in Engineering"*.

THE DIPLOMA OF HONOR of the University "OVIDIUS" of Constantza, Romania, 2000.

The ERNEST ORLANDO LAWRENCE MEMORIAL AWARD, 1998 (NUCLEAR TECHNOLOGY Category)

This award is named after the American-born scientist Ernest Orlando Lawrence, inventor of the cyclotron and Nobel Prize winner. It is awarded by the United States Department of Energy on behalf of the President of the United States of America (William J. Clinton, III). "The award is given for outstanding contributions in the field of atomic energy, which today has influenced many fields of science such as environmental research, materials science and nuclear medicine that were in their infancy in 1960 when the first Lawrence Award was given". The E. O. Lawrence Award is given for six categories: Nuclear Technology, Life Sciences, Materials Research, Physics, Chemistry, and Environmental Science and Technology. I received the E. O. Lawrence Award for Nuclear Technology, and the citation reads:

"For his pioneering work on the conception, development, and applications of local and global sensitivity analysis for nonlinear systems, ranging from comprehensive and rigorous mathematical formulations to seminal applications in nuclear technology, dosimetry and atmospheric sciences."

- The A. A. HARMS INTERNATIONAL AWARD, 1998 (first time awarded in 1998).

This award is named after the founder of ICENES (International Conference on Emerging Nuclear Energy Systems). Prof. Cacuci was the first recipient of this award, at the ICENES 98, Meeting in Tel-Aviv, Israel, June 28 – July 2, 1998.

The citation reads: "*For outstanding contributions to emerging nuclear energy systems*".

HONORARY MEMBER, ROMANIAN ACADEMY, 1996

Election to honorary membership is the most prestigious recognition bestowed world-wide by the Romanian Academy upon a personality in the arts, sciences, humanities, etc. The total number of (full and corresponding) members of the Romanian Academy is limited by the Academy's statutes to currently 180 members.

The SCIENCE PRIZE and title of HONORARY MEMBER of the ROMANIAN CULTURAL FOUNDATION, Bucharest, Romania, 1995 (first time awarded in 1995).

The Romanian Cultural Foundation – a national, autonomous, apolitical and non-governmental institution founded in 1990 – has emerged as Romania's most important national cultural institution after 1989 (the year of the anti-communist revolution). On the occasion of its fifth anniversary, the Foundation has instituted prizes to be awarded internationally for exceptional achievements. Besides myself, the other winners of the Foundation's first-time prizes were: George Palade and Sergiu Celibidache (life-time achievements in biology/medicine and, respectively, music); Gellu Naum and Gregor von Rezzori (belleslettres), Eugen Coseriu and Klaus Heitmann (translations from Romanian literature and Romanian studies), Horia Bernea and Jean Cuisinier (ethnography and folklore), Alexandrina Cernov and Peter Lucaci (world-wide Romanian cultural ties), Sergiu Comissiona (art).

DOCTOR HONORIS CAUSA in Engineering Sciences, POLITEHNICA University of Bucharest, Romania (1994).

The citation reads:

"For outstanding contributions to the development of a generalized theory of sensitivity and uncertainty analysis, with exceptional scientific achievements in the field of nuclear reactor safety".

175th ANIVERSARY JUBILEE MEDAL, POLITEHNICA University of Bucharest (1818 – 1993), Bucharest, Romania (1993).

Awarded to a selected number of eminent scientists world-wide for outstanding services in redefining the educational and research directions for the POLITEHNICA University of Bucharest – Romania's oldest, largest, and most prestigious engineering university.

ALEXANDER VON HUMBOLDT PRIZE FOR SENIOR SCHOLARS, GERMANY (1990). Awarded to *"Eminent Foreign Academics in Recognition of Achievements in Research"*

YOUNG MEMBERS ENGINEERING ACHIEVEMENT AWARD, American Nuclear Society (1988).

Highest ANS Award for technical accomplishments by a member under 40 years of age, to recognize outstanding application of engineering knowledge in nuclear power research and development or commercial uses. The citation reads:

"For his contributions to the development of the theory of sensitivity and uncertainty analysis and for his innovative application of this theory to nonlinear problems of relevance to reactor safety."

OAK RIDGE NATIONAL LABORATORY AND MARTIN MARIETTA ENERGY SYSTEMS PUBLICATIONS AWARD FOR EXCELLENCE (1987).

Highest ORNL/MMES Award for a Technical Journal Article; awarded competitively once per year.

FELLOW, American Nuclear Society (1986).

In 1955, the ANS established the honor of FELLOW to provide recognition of members for distinguished contributions in one or more of the many disciplines in the field of nuclear science and engineering, and to develop a broadly based forum for technical and professional leaders to sure as advisors to the Society.

The citation reads:

"For his Outstanding Contributions to the Advancement of Nuclear Science and Engineering"

BEST PAPER AWARD (1985), American Nuclear Society.

"Nonlinear Dynamics and Stability of Boiling Water Reactors" (with J. March-Leuba and R. B. Perez)

SPECIAL RECOGNITION AWARD (1982 AND 1985); Oak Ridge National Laboratory.
Awarded for Outstanding Technical Achievements (Sensitivity Theory for Nonlinear Systems, 1982; Dose Reassessment of Hiroshima/Nagasaki Survivors, 1985).

The James D. Merriman Award for outstanding graduate work (highest GPA in Engineering), Columbia University, 1973.

SPECIAL ASSIGNMENTS

- *Honorary Director (with Dr. Massimo Salvatores, CEA/France)* of the Frédéric Joliot/Otto Hahn International Summer School on Reactor Physics, since 2004.

- *Member of Italy's Expert Commission on Nuclear Safety and Radio-Protection* (July 2009 – 2013); nominated by Stefana Prestigiacomo, Italy's Minister for the Environment Land and Sea;

Member of the Governing Board of the EU Integrated Project NURENEXT (July 2012 – 2013);

Member of the Governing Board of the EU Integrated Project NURESIM ("Nuclear Reactor Simulations", Jan 2009 – 2013);

Member of the Governing Board of the EU Integrated Project ESFR ("European Sodium Fast Reactor", Jan 2009 – 2013);

- *General Coordinator* (October 2005 – 2009) of the EURATOM Coordination Action (CA) for establishing a **Sustainable Nuclear Fission Technology Platform** (SNF-TP) within Europe;

- *General Coordinator* (January 2004 – March 2006) of the EURATOM-Integrated Project **NURESIM** (European Platform for Nuclear Reactor Simulation);

- *General Coordinator* (January 2004 – September 2005) of the Specific Support Action (SSA) for establishing a **European Nuclear Fission Technology Platform** (ENFTP);

Associate Editor, **Science and Technology of Nuclear Installations** (2006-2013);

Member, Editorial Advisory Board, **Transport Theory and Statistical Physics** (1995 – 2005);

Germany's Representative, OECD/NDC Ad-Hoc Expert Group on "Innovation in Nuclear Energy Technology" (2004 – 2005);

Germany's Representative, OECD/NDC Ad-Hoc Expert Group on the Jules Horowitz Materials Testing Reactor (2003 – 2004);

Member, Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) Project Committee "Transients and Accident Sequences", (1994 – 2004);

Member, Trilateral Steering Committee: Commissariat à l'Energie Atomique/EURATOM/Forschungszentrum Karlsruhe (1995 – 2004);

Member, International Advisory Committee, "Plutonium Futures-the Science Conference", Albuquerque, New Mexico, USA (July 2003);

Member, Steering Committee: Electric Utilities/Siemens/Forschungszentrum Karlsruhe, Germany (1992 -2004);

Member, National Honors and Awards Committee American Nuclear Society (1998 – 2000);

Chairman, International Review Committee Nuclear Engineering Department, Ben Gurion University, Beer-Sheeva, Israel (2000);

Reviewer, U.S. Department of Energy, FY-2000 Nuclear Engineering Education Research (NEER) Grant Program;

Member, Selection Commission, National Science Foundation – (1994 – 1998);

Co-Founding Director (with Dr. Massimo Salvatores, CEA/France) of the Frédéric Joliot/Otto Hahn International Summer School on Reactor Physics, 1998.

Honorary Guest, The 1st International Congress "Romania and Romanians in Contemporary Science", May 24-27, 1994, Sinaia, Romania;

Visiting Professor, Kernforschungszentrum Karlsruhe, Germany (June – Sept. 1990, May – August 1991,December 1991 – January 1992, May-August 1992);

Secretary/Treasurer, American Nuclear Society (ANS), Reactor Physics Division (1992-1994);

Executive Committee, American-Romanian Academy of Arts and Sciences (1990-1992);

Secretary-General, The 16th International Congress of the American-Romanian Academy of Arts and Sciences, organizing the first time this Congress was held in Romania (Bucharest, June 27-July 2, 1991), after the overthrow of the communist dictatorship;

Executive Committee, ANS Reactor Physics Division (1989-1992), ANS Mathematics and Computation Division (1993 – 1996);

Chairman, Sensitivity and Uncertainty Analysis Subgroup of the Working Group on the Reassessment of Atomic (A-) Bomb Dosimetry of the U.S. Department of Energy (1985-1988), U.S.-Japan Dosimetry Program;

Member, U.S.-Japan Working Group on the Reassessment of A-Bomb Dosimetry (1981-1988);

General Chairman, 1987 International Topical Meeting on Radiation Protection and Shielding , American Nuclear Society, Knoxville, TN, April 22-24, 1987;

Secretary, National Planning Committee, American Nuclear Society (1983-1986);

Invited Lecturer, Ispra course on "Data Uncertainties, Sensitivities, Consistency, and Adjustment," Ispra, Italy (April 1986);

Invited Lecturer, NATO Advanced Study Institute, "Regular and Chaotic Motions of Dynamical Systems," International School of Mathematical Physics, Ettore Majorana Center for Scientific Culture, Erice, Sicily, Italy (July 1983);

INVITED PRESENTATIONS

Delivered over 700 invited lectures and presentations at

leading universities, including: California Institute of Technology, Courant Institute of Mathematical Sciences, Columbia University, Princeton University, Technion Haifa, the Hebrew University of Jerusalem, Ben Gurion University of the Negev, Massachusetts Institute of Technology , Georgia Institute of Technology, Oregon State University, University of Utah, University of Arizona, University of Virginia, University of Michigan, University of Wisconsin, University of California (Berkeley, Los Angeles, San Diego), University of Illinois, Duke University, North Carolina State University, University of Nevada at Las Vegas, The Pennsylvania State University, KAIST-Korea, Ecole Polytechnique de Montreál, University of Stuttgart, University of Bologna, Florida State University, Romanian Academy, POLITEHNICA University of Bucharest, University of Cluj-Napoca, University of Grenoble, Madrid Polytechnical University, Technical University of Moldavia, Chalmers University of Göteborg, The Royal Institute of Technology Stockholm, Imperial College of London; etc.

government institutions and laboratories, including U.S. Nuclear Regulatory Commission, Israel Nuclear Regulatory Commission, Department of Energy, Strategic Defense Initiative Office, National Academy of Sciences, National Academy of Engineering, National Science Foundation, National Center for Atmospheric Research, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Savannah River Laboratory, Oak Ridge National Laboratory, Sandia National Laboratory, Brookhaven National Laboratory, Kernforschungszentrum Karlsruhe, The European Commission (Brussels), Joint European Research Center

Ispra, Commissariat à l'Energie Atomique Paris/Cadarache/Grenoble/Saclay, PNC Japan, KAERI-Korea, Institute of Atomic Physics Bucharest; etc.

industrial and private organizations, including Electric Power Research Institute, General Electric, Westinghouse, Bell Labs, Draper Labs, FRAMATOME, Siemens, AREVA, Electricite de France, etc.

Have supervised and graduated 52 doctoral students at the University of Karlsruhe and NCSU since 1993.

BIOGRAPHICAL LISTINGS IN: Who's Who in Frontier Science and Technology, 1st and 2nd Edition; Who's Who in Engineering, 6th Edition; Who's Who in the World, 7th Edition; The International Who's Who of Contemporary Achievement, 1985 Edition; Who's Who in America, 43rd Edition; Personalities of America Hall of Fame, etc.

PATENTS

1. Bostan Ion (MD), D.G. Cacuci (DE), Ionescu Florin, (DE), Dulgheru Valeriu (MD) "Process for manufacture by explosion of structures with microgrooves", MD-3565 F2, B23K 20/08 (MD-BOPI 4/2008).

2. D.G. Cacuci (DE), Bostan Ion (MD), Dulgheru Valeriu (MD), Ionescu Florin (DE) "Process and tool electrode for manufacturing metal or alloy structures by electro-erosion (variants)",MD-3596 F2, B23H 7/08 (MD-BOPI 5/2008).

PUBLICATIONS

I. Books

1. D.G. Cacuci,
   Sensitivity and Uncertainty Analysis: Theory,
   Volume 1, Chapman & Hall/CRC, Boca Raton, 2003.
2. D.G. Cacuci, M. Ionescu-Bujor, and M.I. Navon
   Sensitivity and Uncertainty Analysis: Applications to Large Scale Systems,
   Volume 2, Chapman & Hall/CRC, Boca Raton, 2005.
3. D.G. Cacuci (Editor)
   Handbook of Nuclear Engineering, Five Volumes, ca. 3600 pages, 400 illustrations; ISBN: 978-0-387-98150-5, Springer New York / Berlin, 2010.
4. P. Bartolomei, M. Belli, D. G. Cacuci, F. Gugliermetti, A. Lagana, E. Pedrocchi,
   Energia Nucleare Oggi,
   Ministero dell' Ambiente e della Tutela del Territorio e del Mare,
   Nuova Cultura, Rome, Italy, 2011.
5. D.G. Cacuci, M.I. Navon, and M. Ionescu-Bujor,
   Computational Methods for Data Evaluation and Assimilation,
   Chapman & Hall/CRC, Boca Raton, 2014.
6. D.G. Cacuci
   Second-Order Adjoint Sensitivity Analysis Methodology for Large-Scale Nonlinear Systems, Taylor & Francis/CRC Boca Raton (in print; February 2018).
7. D.G. Cacuci
   Modern Predictive Modeling, Springer New York / Berlin, (under contract; scheduled for 6/2018).
8. Dan G. Cacuci,
   The Comprehensive Adjoint Sensitivity Analysis Methodology (C-ASAM) -- Breaking the Curse of Dimensionality in Sensitivity and Uncertainty Analysis, Volume I: Linear Systems, Springer New York / Berlin, (under contract; scheduled for 12/2019).
9. Dan G. Cacuci,
   The Comprehensive Adjoint Sensitivity Analysis Methodology (C-ASAM) -- Breaking the Curse of Dimensionality in Sensitivity and Uncertainty Analysis, Volume II: Nonlinear Systems, Springer New York / Berlin, (under contract; scheduled for 12/2019).

II. Book Chapters

1. D.G. Cacuci,
   ”The Forward and the Adjoint Methods of Sensitivity Analysis”,
   Chapter 3 in ”*Uncertainty Analysis*”, Y. Ronen, Ed., pp. 71-144,
   CRC Press, Inc., Boca Raton, Florida (1988).
2. D.G. Cacuci,
   “Current International Initiatives for Sustainable Nuclear Energy”,
   Chapter 8 in “*Sustainable Energy Technologies: Options and Prospects*”,
   K. Hanjalic, R. van de Kroll, A. Lekic, Eds., Springer Berlin, Heidelberg,
   New York, 2008.
3. D.G. Cacuci and Mihaela Ionescu-Bujor,
   “Sensitivity and Uncertainty Analysis, Data Assimilation and Predictive
   Best-Estimate Model Calibration”,
   Chapter 17 in Vol.3, pp 1913 – 2051, *Handbook of Nuclear Engineering*,
   D. G. Cacuci, Editor, ISBN: 978-0-387-98150-5, Springer New York /
   Berlin, 2010.
4. D.G. Cacuci and Mihaela Ionescu-Bujor,
   “Mathematics for Nuclear Engineering” ,
   Chapter 17 in Vol.1, pp 643 – 749,in *Handbook of Nuclear Engineering*,
   D. G. Cacuci, Editor, ISBN: 978-0-387-98150-5, Springer New York /
   Berlin, 2010.
5. D.G. Cacuci,
   ”Perturbation Theory, Sensitivity and Uncertainty Analysis”,
   Chapter 6 in ”*Nuclear Computational Science: A Century in Review*”, Y.Y.
   Azmy and E. Sartori, Eds., pp. 367-448, Springer, 2010.

III. Peer-Reviewed Publications

1. H. Goldstein, L.Y. Huang, L.P. Ku, and D.G. Cacuci, ”Cross-Section Sensitivities for Sodium in Relation to Fast Reactor Shielding”, *Trans. Am. Nucl. Soc.,* **18**, 364 (1974).
2. J.P. Felvinci, D.G. Cacuci, and E. Melkonian, ”Level Density Calculation for Deformed Nuclei”, Conference and Nuclear Cross-Sections and Technology, Washington, D.C., March 5-7, 1975, NBS Special Publication 425, R.A. Schrack and C.D. Bowman (Eds.), pp. 335-338, U.S. Govt. Printing Office, Washington, D.C.
3. A. Buslik, D.G. Cacuci, and A. Aronson, Power Peaking During Load Following Using Westinghouse Constant Axial Offset Power-Distribution Control, BNL-NUREG-22477, Brookhaven National Laboratory, Upton, N.Y. (January 1977).
4. D.G. Cacuci and H. Goldstein, ”Neutron Slowing Down and Transport in a Medium of Constant Cross Section I: Spatial Moments”, *J. Math. Phys*., **18**, 2436-2444 (1977).
5. D.G. Cacuci and M.A. Bjerke, ”Analytical Inequalities Satisfied by the Cross-Section Self-Shielding Factors”, Int. Conf., ”A Review of Multigroup Nuclear Cross-Section Processing”, March 14-16, 1978, Oak Ridge, Tennessee, ORNL/RSIC-41, 227 (1978).
6. D.G. Cacuci, Analytical Calculations of Neutron Slowing Down and Transport in the Constant-Cross-Section Problem, ORNL-TM-6378, Oak Ridge National Laboratory, Oak Ridge, Tennessee (April 1978).
7. J. Barhen and D.G. Cacuci, ”Determination of Current Weighted Total Cross Sections in the Unresolved Energy Region”, *Trans. Am. Nucl. Soc.,* **32**, 310 (1979).
8. C.F. Weber, D.G. Cacuci, and E.M. Oblow, ”Differential Sensitivity Theory for Nonlinear Equations with Nonlinear Responses”, *Trans. Am. Nucl. Soc.,* **33**, 338 (1979).
9. J. Barhen and D.G. Cacuci, ”Computation of Analytical Bounds for the Cross Section Self-Shielding Factors”, *Trans. Am. Nucl. Soc.,* **33**, 351 (1979).
10. D.G. Cacuci, C.F. Weber, E.M. Oblow, and J.H. Marable, ”Sensitivity Theory for General Systems of Nonlinear Equations”, *Nucl. Sci. Eng*., **75**, 88-110 (1980).

11. J. Barhen, D.G. Cacuci, W.E. Ford, III, R.W. Roussin, J.J. Wagschal, C.R. Weisbin, J.E.White, and R.Q. Wright,
”Vitamin E: A Multipurpose ENDR/B-V Coupled Neutron-Gamma Cross Section Library”, American Physical Society International Conference on Nuclear Cross Sections for Technology, Knoxville, Tennesse, October 22-26, 1979, NBS Special Publication 594, J.L. Fowler, C.H. Johnson, and C.D. Bowman, Eds., pp. 204-208, U.S. Govt. Printing Office, Washington, D.C. (1980).

12. D.G. Cacuci and C.F. Weber,
”Application of Sensitivity Theory for Extrema of Functions to a Transient Reactor Thermal-Hydraulics Problems”, *Trans. Am. Nucl. Soc.,* **34**, 312 (1980).

13. D.G. Cacuci, C.F. Weber, E.M. Oblow, and J.H. Marable,
Generalized Sensitivity Theory for Systems of Coupled Nonlinear Equations, ORNL/NUREG/TM-349, Oak Ridge National Laboratory, Oak Ridge, Tennessee (January 1980).

14. Y. Ronen, M.A. Bjerke, D.G. Cacuci, and J. Barhen,
A Nonlinear Sensitivity and Uncertainty Analysis in Support of the Blowdown Heat Transfer Program, NUREG/CR-1723, ORNL/NUREG/TM-412, Oak Ridge National Laboratory, Oak Ridge, Tennessee (November 1980).

15. Y. Ronen, D.G. Cacuci, and J.J. Wagschal
Determination and Application of Generalized Bias Operators Using an Inverse Perturbation Approach, Oak Ridge National Laboratory, Oak Ridge, Tennessee (November 1980).

16. C.F. Weber, D.G. Cacuci, and C.V. Parks,
”Application of Differential Sensitivity Theory for Problems with Discontinuities”, *Trans. Am. Nucl. Soc.,* **34**, 314 (1980).

17. W.G. Craddick, R.E. Bohanon, D.G. Cacuci et al.,
Progress Report on Blowdown Heat Transfer Separate-Effects Program, ORNL/NUREG/TM-381, Oak Ridge National Laboratory, Oak Ridge, Tennessee (1980).

18. J. Barhen, D.G. Cacuci, J.J. Wagschal, and C.B. Mullins,
”A Systematic Methodology for the Reduction of Uncertainties in Transient Thermal-Hydraulics by Using In-Bundle Measurement Data”, ANS Topical Conference 1980 Advances in Reactor Physics and Shielding, Sun Valley, Idaho, September 14-17, 1980, ANS/70048, 156-168 (1980).

19. D.G. Cacuci, E. Greenspan, J.H. Marable, and M.L. Williams,
”Developments in Sensitivity Theory”, ANS Topical Conference 1980 Advances in Reactor Physics and Shielding, Sun Valley, Idaho, September 14-17, 1980, NAS/70048, 692-704 (1980).

20. J. Barhen and D.G. Cacuci,
”An Efficient Procedure to Evaluate Second-Order Sensitivities for Nonlinear Problems with Nonlinear Responses”, *Trans. Am. Nucl. Soc.,* **35**, 266 (1980).

21. D.G. Cacuci, Y. Ronen, and J.J. Wagschal,
”Generalized Bias Operators in Reactor Physics”, *Trans. Isr. Nucl. Soc.,* **8**, 4-9, Beer-Sheva, Israel (1980).

22. D.G. Cacuci,
Sensitivity Theory for Nonlinear Systems, EPRI NP 81-10-LD, Electric Power Research Institute, Palo Alto, California (July 1981).

23. D.G. Cacuci,
Sensitivity Theory for Nonlinear Systems. I. Nonlinear Functional Analysis Approach, ORNL/TM-7304, Oak Ridge National Laboratory, Oak Ridge, Tennessee (August 1981).

24. D.G. Cacuci,
Sensitivity Theory for Nonlinear Systems. II. Extensions to Additional Classes of Responses, ORNL/TM-7511, Oak Ridge National Laboratory, Oak Ridge, Tennessee (August 1981).

25. D.G. Cacuci, P.J. Maudlin, C.V. Parks, and C.F. Weber,
”Recent Advances and Applications of Differential Sensitivity Theory in Reactor Safety”, ANS/ENS International Topical Meeting on ”Advances in Mathematical Methods for the Solution of Nuclear Engineering Problems”, Munich, Germany, April 27-29, 1981, Vol. 2, 237 (1981).

26. P.J. Maudlin, C.V. Parks, and D.G. Cacuci,
”Differential Sensitivity Theory Applied to Movement of Maxima Responses”, *Trans. Am. Nucl. Soc.,* **38**, 333 (1981).

27. Y. Ronen, D.G. Cacuci, and J.J. Wagschal,
”Determination and Application of Generalized Bias Operators Using an Inverse Perturbation Approach”, *Nucl. Sci. Eng*., **77**, 426-437 (1981).

28. D.G. Cacuci,
”Sensitivity Theory for Nonlinear Systems: I. Nonlinear Functional Analysis Approach”, *J. Math. Phys*., **22**, 2794-2802 (1981).

29. D.G. Cacuci,
“Sensitivity Theory for Nonlinear Systems: II. Extensions to Additional Classes of Responses”, *J. Math. Phys*., **22**, 2803-2812 (1981).

30. D.G. Cacuci, P.J. Maudlin, and D.V. Parks,
Applications of Differential Sensitivity Theory for Extremum-Type Responses, ORNL/TM-7717, Oak Ridge National Laboratory, Oak Ridge, Tennessee (May 1982).

31. A. Yaari, J.J. Wagschal, and D.G. Cacuci,
”Leakage Importance”, *Trans. Isr. Nucl. Soc.*, **10**,1.17-1.21, Haifa, Israel (1982).

32. E. Wacholder, S. Kaizerman, and D.G. Cacuci,
”Sensitivity Analysis for Transient Two-Phase Flow Systems”, Proceedings of the 16th Conference of the Israel Mechanical Engineering Association, Haifa, Israel, July 13-14, 1982.

33. J. Barhen, D.G. Cacuci, J.J. Wagschal, M.A. Bjerke, and C.B. Mullins, ”Uncertainty Analysis of Time-Dependent Nonlinear Systems: Theory and Application to Transient Thermal-Hydraulics”, *Nucl. Sci. Eng*., **81**, 23-44 (1982).

34. D.G. Cacuci, Y. Ronen, Z. Shayer, J.J. Wagschal, and Y. Yeivin, ”Eigenvalue-Dependent Neutron Energy Spectra: Definitions, Analyses, and Applications”, *Nucl. Sci. Eng.,* **81**, 432-442 (1982).

35. D.G. Cacuci, J.J. Wagschal, and A. Yaari, ”Particle and Radiation Leakage Importance: Definition, Analysis, and Interpretation”, *Nucl. Sci. Eng.,* **81**, 443-450 (1982).

36. J.H. Marable, D.G. Cacuci, C.R. Weisbin, J.R. White, D. Biswas, J.M. Kallfelz, C.L. Cowan, and R.P. Protsik, ”Sensitivities and Uncertainties of a Large LMFBR Using Adjusted Cross-Section Library ORACLE-1”, Proceedings Topical Meeting on Advances in Reactor Physics and Core Thermal Hydraulics, Kiamesha Lake, New York, September 22-24, 1982, NUREG/CP-0034, Vol. 2, 1120-1134, U.S. Nuclear Regulatory Commission, Washington, D.C. (1982).

37. Y. Ronen, A. Galperin, and D.G. Cacuci, ”Derivation and Application of Second-Order Uncertainty Analysis for Normally Distributed Parameters”, *Ann. Nucl. Energy ,* **9**, 351-358 (1982).

38. M.C.G. Hall, D.G. Cacuci, and M.E. Schlesinger, ”Sensitivity Analysis of a Radiative-Convective Model by the Adjoint Method”, *J. Atm. Sci.,* **39**, 2038-2050 (1982).

39. D.G. Cacuci, ”On the Finiteness of the Number of Discrete Eigenvalues in Neutron Transport Theory”, *J. Math. Phys.,* **23**, 2205-2214 (1982).

40. D.G. Cacuci and E. Wacholder, ”Adjoint Sensitivity Analysis for Transient Two-Phase Flow”, *Nucl. Sci. Eng.,* **82**, 461-468 (1982).

41. J. March-Leuba, D.G. Cacuci, and R.B. Perez, ”Nonlinear Dynamics of Boiling Water Reactors”, *Trans. Am. Nucl. Soc.* **45**, 725 (1983).

42. N. Toomarian, E. Wacholder, S. Kaizerman, and D.G. Cacuci, ”Adjoint Sensitivity Analysis of Transient Two-Phase Flow Problems”, Proceedings of the 17th Conference of the Israel Mechanical Engineering Association, Tel-Aviv, Israel, p. 5.3G, July 1983.

43. D.G. Cacuci, P.J. Maudlin, and C.V. Parks, ”Adjoint Sensitivity Analysis of Extremum-Type Responses in Reactor Safety”, *Nucl. Sci. Eng.,* **83**, 112-135 (1983).

44. L.A. Belblidia, J.M. Kallfelz, and D.G. Cacuci, ”Generalized Perturbation Theory with Derivative Operators for Power Density Investigations”, *Nucl. Sci. Eng.,* **84**, 206-225 (1983).

45. M.C.G. Hall and D.G. Cacuci, ”Physical Interpretation of the Adjoint Functions for Sensitivity Analysis of Atmospheric Models”, *J. Atm. Sci.,* **40**, 2537-2546 (1983).

46. D.G. Cacuci, E. Wacholder, S. Kaizerman, and N. Toomarian, Applications of Differential Sensitivity Theory for Extremum-Type Responses, EPRI NP-3635, Electric Power Research Institute, Palo Alto, California (July 1984).

47. B.L. Broadhead, D.G. Cacuci, and J.V. Pace, III, "Adjoint Transport Calculations for Sensitivity Analysis of the Hiroshima Air-Over-Ground Environment", *Trans. Am. Nucl. Soc.,* **46**, 638 (1984).

48. J. March-Leuba, D.G. Cacuci, and R.B. Perez, "Universality and Aperiodic Behavior of Nuclear Reactors", *Nucl. Sci. Eng.,* **86**, 401-404 (1984).

49. J. March-Leuba, R.B. Perez, and D.G. Cacuci, "Calculation of Limit Cycle Amplitudes in Commercial Boiling Water Reactors", *Trans. Am. Nucl. Soc.,* **46**, 749 (1984).

50. D.G. Cacuci, E. Wacholder, S. Kaizerman, and N. Toomarian, "Adjoint Sensitivity Analysis of a Thermal-Hydraulic System Undergoing Phase Change Due to Boiling Transition", *Trans. Am. Nucl. Soc.,* **46**, 870 (1984).

51. D.G. Cacuci and M.C.G. Hall, "Efficient Estimation of Feedback Effects with Application to Climate Models", *J. Atm. Sci.,* **41**, 2063-2068 (1984).

52. F.C. Difilippo, D.G. Cacuci, and B.A. Worley, "Flux Synthesis for the On-Line Surveillance of Nuclear Power Plants", 1984 International Conference of the ANS/ENS, *Trans. Am. Nucl. Soc.,* **47**, 441 (1984).

53. M.C.G. Hall and D.G. Cacuci, "Systematic Analysis of Climate Model Sensitivity to Parameters and Processes", in 'Climate Processes and Climate Sensitivity', J.E. Hansen and T. Takahashi, Eds., Geophysical Monograph 29, p. 171, Maurice Ewing Volume 5, American Geophysical Union, Washington, D.G. (1984).

54. T.L. King, R.B. Perez, D.G. Cacuci, R.T.Wood, and E.L. Machado, "Application of Variational-Heuristic Learning Methods to Reactor Physics: A New Concept in Artificial Intelligence", 1984 International Conference of the ANS/ENS, Trans. Am. Nucl. Soc., **47**, 439 (1984).

55. E. Wacholder, S. Kaizerman, N. Toomarian, and D.G. Cacuci, "An Exact Sensitivity Analysis of a Simplified Transient Two-Phase Flow Problem", *Nucl. Sci. Eng.,* **89**, 1-35 (1985).

56. J. March-Leuba, D.G. Cacuci, and R.B. Perez, "Nonlinear Dynamics and Stability of Boiling Water Reactors: Qualitative and Quantitative Analyses", *Trans. Am. Nucl. Soc.,* **50**, 543 (1985), Mark Mills Award, <u>invited</u>.

57. D.G. Cacuci, R.B. Perez, and V. Protopopescu, Propagators for Nonlinear Equations, ORNL/TM-10016, Oak Ridge National Laboratory, Oak Ridge, Tennessee (May 1986).

58. J. March-Leuba, D.G. Cacuci, and R.B. Perez, ”Nonlinear Dynamics and Stability of Boiling Water Reactors. I: Qualitative Analysis”, *Nucl. Sci. Eng.,* **93**, 111-123 (1986), Mark Mills Award, American Nuclear Society.

59. J. March-Leuba, D.G. Cacuci, and R.B. Perez, ”Nonlinear Dynamics and Stability of Boiling Water Reactors. II: Quantitative Analysis”, *Nucl. Sci. Eng.,* **93**, 124-136 (1986), Mark Mills Award, American Nuclear Society.

60. D.G. Cacuci, J. March-Leuba, and R.B. Perez, ”Limit Cycles and Bifurcations in Nuclear Systems”, *Trans. Am. Nucl. Soc.,* **53**, 239 (1986), invited.

61. D.G. Cacuci, Deterministic Sensitivity Theory for Nonlinear Systems: The Forward and Adjoint Methods, ORNL/TM-10058, Oak Ridge National Laboratory, Oak Ridge, Tennessee (August 1986).

62. R.A. Lillie, B.L. Broadhead, J.V. Pace, III, and D.G. Cacuci, ”Sensitivity/Uncertainty Analysis for the Nagasaki Dosimetry Reevaluation Effort”, ANS Proceedings of the Topical Conference on Theory and Practices in Radiation Protection and Shielding, April 22-24, 1987, Knoxville, Tennessee, pp. 139-148 (April 1987).

63. B.L. Broadhead, R.A. Lillie, J.V. Pace, III, and D.G. Cacuci, ”Sensitivity/Uncertainty Analysis for the Hiroshima Dosimetry Reevaluation Effort”, ANS Proceedings of the Topical Conference on Theory and Practices in Radiation Protection and Shielding, April 22-24, 1987, Knoxville, Tennessee, pp. 149-157 (April 1987).

64. D.G. Cacuci, R.B. Perez, and V. Protopopescu, ”Extending Green's Function Formalism to General Nonlinear Equations”, First International Conference on Industrial and Applied Mathematics, Paris, June 29 - July 3, 1987.

65. D.G. Cacuci, ”Neutron Slowing Down and Transport in an Infinite Medium: I. Generalized Age-Theory and its Range of Validity”, *Trans. Am. Nucl. Soc.,* **55**, 336 (1987).

66. D.G. Cacuci, ”Neutron Slowing Down and Transport in an Infinite Medium: II. The Scalar Flux at Large Distances/Small Lethargies”, *Trans. Am. Nucl. Soc.,* **55**, 337 (1987).

67. D.G. Cacuci, R.B. Perez, V. Protopopescu, ”Duals and Propagators: A Canonical Formalism for Nonlinear Equations”, *J. Math. Phys.,* **29**, 353-361 (1988).

68. R.A. Lillie, B.L. Broadhead, J.V. Pace, III, and D.G. Cacuci, ”Sensitivity/Uncertainty Analysis for Free-in-Air Tissue Kerma at Hiroshima and Nagasaki Due to Initial Radiation”, *Nucl. Sci. Eng.*, **100**, 105-124 (1988).

69. D.G. Cacuci and V. Protopopescu,
”Propagators for Nonlinear Systems”, Third International Workshop on Mathematical Aspects of Fluid and Plasma Dynamics, Salice Terme, Italy, September 26-30, 1988.

70. D.G. Cacuci,
”Sensitivity Analysis, Optimization, and Global Critical Points”, *Trans. Am. Nucl. Soc.*, **60**, 602 (1989), invited.

71. D.G. Cacuci and V. Protopopescu,
”Propagators for Nonlinear Systems”, *J. Phys. A.*, **22**, 2399-2414 (1989).

72. D.G. Cacuci,
”Global Optimization and Sensitivity Analysis”, *Nucl. Sci. Eng.*, **104**, 78-88 (1990).

73. D.G. Cacuci and O.A. Karakashian,
”Benchmarking the Propagator Method for Nonlinear Systems: A Burgers-Korteweg-de-Vries Equation”, *J. Comp. Phys.*, **88**, 63-79 (1990).

74. D.G. Cacuci and V. Protopopescu,
”Canonical Propagators for Nonlinear Systems: Theory and Sample Applications”, in 'Mathematical Aspects of Fluid and Plasma Dynamics', G. Toscani, V. Boffi, S. Rionero (Eds.), Lecture Notes in Mathematics, Vol. **1460**, 43-56, Springer-Verlag (1991).

75. D.G. Cacuci,
”On the Slowing Down and Transport of Neutrons in an Infinite Medium”, *Nucl. Sci. Eng.*, **108**, 50-68 (1991).

76. D.G. Cacuci,
”On Chaotic Dynamics in Nuclear Engineering Systems”, *Nucl. Technol.*, **103**, 303-309 (1993).

77. C.I. Costescu, D.G. Cacuci, J.R. Deen, W.L. Woodruff,
"Microscopic Cross Sections for and from the WiMSD4 Cell Code", *Trans. Am. Nucl. Soc.*, **68**, 471 (1993).

78. X. Zou, A. Barcilon, I.M. Navon, J. Whitaker, and D.G. Cacuci,
”An Adjoint Sensitivity Study of Blocking in a Two-Layer Isentropic Model”, *Mon. Wea. Rev.*, **121**, 2833-2857 (1993).

79. D.G. Cacuci and M.E. Schlesinger,
”On the Application of the Adjoint Method of Sensitivity Analysis to Problems in the Atmospheric Sciences”, *Atmosfera,* **7***,* 47 - 59 (1994).

80. C. Jackson, H. Finnemann, D.G. Cacuci, R. Boer,
"Two-Level Algorithm for Efficient Space-Time Reactor Core Calculations", *Trans. Am. Nucl. Soc.*, **70**, 354 (1994).

81. D.G. Cacuci and M.E. Schlesinger,
"Letter to the Editor", *Atmosfera*, **7**, 249 (1994).

82. D.G. Cacuci,
"Multigroup Neutron Diffusion in Two-Dimensional Multiregion Domains with Interior Corners", *Trans. Am. Nucl. Soc.*, **74**, 151 (1996).

83. O. Craciunescu, A. Bejan, D.G. Cacuci, and W. Schütz, "Time-Dependent Interaction between Water at Supercritical Pressures and a Hot Surface", *Num. Heat. Transfer*, Part A, **30**, 535-553 (1996).

84. D.G. Cacuci, "Angular Eigenfunctions for Elliptical Problems in Two-Region Domains with Interior Corners", *Trans. Am. Nucl. Soc.*, **74**, 153 (1996).

85. D.G. Cacuci, M. Ionescu-Bujor, "Angular Eigenfunctions for Elliptical Problems in Three- and Four-Region Domains with Interior Corners", *Trans. Am. Nucl. Soc.*, **74**, 156 (1996).

86. D.G. Cacuci, "Multigroup Neutron Diffusion in Multi-Region Domains with Interior Corners", PHYSOR96 Int. Conf. on the Physics of Reactors, Vol. 1, p. A-1, Sept. 16-20, 1996, Mito, Ibaraki, Japan.

87. C.J. Jackson, D.G. Cacuci, and H.B. Finnemann, "Efficiency Enhancement of RELAP/PANBOX Using Adaptive Spatial Kinetics", *Trans. Am. Nucl. Soc.*, **75**, 323 (1996).

88. A. Bejan, N. Dan, D.G. Cacuci, and W. Schütz, "On the Thermodynamic Efficiency of Energy Conversion During the Expansion of a Mixture of Hot Particles, Steam, and Liquid Water", *Energy - the Int. J.*, **22**, 1119-1133 (1997).

89. C.J. Jackson, D.G. Cacuci, and H.B. Finnemann, "Comparison of a Dimensionally Adaptive Algorithm with Conventional Neutron Kinetics Models for Reactor Safety Transients", Invited Paper, Joint Int. Conf. on Math. Methods and Supercomp. for Nucl. Appl., Saratoga Springs, New York, USA, October 5-10, 1997.

90. D.G. Cacuci, "Perturbation Methods and Deterministic Sensitivity Analysis: A Brief Critical Review", Invited Paper, Joint Int. Conf. on Math. Methods and Supercomp. for Nucl. Appl., Saratoga Springs, New York, USA, October 5-10, 1997.

91. D.G. Cacuci, M. Ionescu-Bujor, “Sensitivity Analysis of Thermodynamic Properties of Water: A Prerequisite for Deterministic Sensitivity Analysis of Thermal-Hydraulic Codes”, ICONE-6, Proc. of the Int. Conf. on Nucl. Eng., San Diego, CA, May 10-15, 1998, CD-ROM; ASME, New York (1998).

92. A. Bejan, N. Dan. D.G. Cacuci, and W. Schütz, “On the Thermodynamic Efficiency of Energy Conversion During the Thermal Interaction between Hot Particles, Water, and Steam”, FZKA 6020, Forschungszentrum Karlsruhe, Germany (June 1998).

93. D.G. Cacuci, "Two-Dimensional Geometrical Corner Singularities in Neutron Diffusion. I. Analysis", *Nucl. Sci. Eng*., **128**, 1-16 (1998).

94. D.G. Cacuci, E. Kiefhaber, B. Stehle, "Two-Dimensional Geometrical Corner Singularities in Neutron Diffusion. II. Illustrative Application", *Nucl. Sci. Eng*., **128**, 17-26 (1998).

95. N. Dan, A. Bejan, D.G. Cacuci, and W. Schütz,
"Evolution of a Mixture of Hot Particles, Steam and Water Immersed in a Water Pool", *Numerical Heat Transfer*, Part A, **34**, 463-478 (1998).

96. A. Bejan, N. Dan, D.G. Cacuci, and W. Schütz,
"Exergy Analysis of Energy Conversion During the Thermal Interaction Between Hot Particles and Water", *Energy - the Int. J.,* **23**, 913-928 (1998).

97. M. Ionescu-Bujor and D.G. Cacuci,
"Deterministic Sensitivity Analysis of Water Material Properties in Coupled Neutronics-Thermal-Hydraulic Codes", Int. Conf. on the Physics of Nucl. Sci. and Techn., Long Island, NY, October 5-8, 1998, Vol 1, p. 372-379, Am. Nucl. Soc., LaGrange Park, Illinois (1998).

98. M. Wörner, A. Blahak, W. Sabisch, G. Grötzbach, and D.G. Cacuci,
"Ein Konzept zur Grobstruktursimulation turbulenter Zweiphasenströmungen", Tagung des Fachausschusses Mehrphasenströmungen der Gesellschaft für Verfahrenstechnik und Chemieingenierwesen (GVC), Aachen, Germany, March 2-4, 1998.

99. M. Simon, W. Cherdron, and D.G. Cacuci,
"Hochauflösende 3d-Röntgentomographie zur Analyse von Blasenströmungen", Tagung des Fachausschusses Mehrphasenströmungen der Gesellschaft für Verfahrenstechnik und Chemieingenieurwesen (GVC), Bad Kissingen, Germany, March 1-3, 1999.

100. W. Sabisch, W. Wörner, G. Grötzbach, and D.G. Cacuci,
"Methode und erste Ergebnisse zur Direkten Numerischen Simulation von Blasen mit TURBIT-VOF", Tagung des Fachausschusses Mehrphasenströmungen der Gesellschaft für Verfahrenstechnik und Chemieingenierwesen (GVC), Bad Kissingen, Germany, March 1-3, 1999.

101. W. Sabisch, M. Wörner, G. Grötzbach, and D.G. Cacuci,
"An improved Volume-of-Fluid method for numerical simulation of clusters of bubbles", The 9th Int. Conf. on Two-Phase Flow Predictions, Halle, Germany, April 13-16, 1999.

102. C.J. Jackson, D.G. Cacuci, and H.B. Finnemann,
"Dimensionally Adaptive Neutron Kinetics for Multidimensional Reactor Safety Transients. I. New Features of RELAP5/PANBOX", *Nucl. Sci. Eng.*, **131**, 143-163 (1999).

103. C.J. Jackson, D.G. Cacuci, and H.B. Finnemann,
"Dimensionally Adaptive Neutron Kinetics for Multidimensional Reactor Safety Transients. II. Dimensionally Adaptive Switching Algorithms", *Nucl. Sci. Eng.*, **131**, 164-186 (1999).

104. M. Ionescu-Bujor and D.G. Cacuci,
"Adjoint Sensitivity Analysis of the Two-fluid Model in RELAP5/MOD3.2", Invited Paper, M&C'99, International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications, Madrid, Spain, September 27-30, 1999, Vol. 1 p. 745-754, Senda Editorial, Madrid, Spain, 1999.

105. D.G. Cacuci, M. Ionescu-Bujor, H. Finnemann, and F. Depisch, "Adjoint Sensitivity Analysis of Coupled Thermal-Hydaulics/Neutron-Kinetics Codes: The RELAP5/PANBOX/COBRA System", Invited Paper, M&C'99, International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications, Madrid, Spain, September 27-30, 1999, Vol. 1, p. 503-512, Senda Editorial, Madrid, Spain, 1999.

106. D.G. Cacuci, "The Role of Mathematics, Computations and Simulations in Nuclear and Environmental Applications", Keynote Invited Paper, M&C'99, International Conference on Mathematics and Computation, Reactor Physics and Environmental Analysis in Nuclear Applications, Madrid, Spain, September 27-30, 1999, Vol. 1, p. 9-14, Senda Editorial, Madrid, Spain, 1999.

107. D.G. Cacuci and M. Ionescu-Bujor, "Adjoint Sensitivity Analysis of Coupled Neutronics/Thermal-Hydraulic Codes", Fachtagung der KTG-Fachgruppen "Thermo- und Fluiddynamik" and "Reaktorphysik und Berechnungsmethoden", Dresda, January 31 – February 1, 2000, p. 3.14-3.24, Forschungszentrum Rossendorf, Germany, February 2000.

108. D.G. Cacuci, "Innovative Features in the RELAP5/PANBOX/COBRA Neutron-Kinetics/Thermal-Hydraulics Code System", Invited Paper, ICONE-8, The 8th Int. Conf. on Nuclear Engineering, Track 7.27, #8774, April 2-6, 2000, Baltimore, M.D.

109. M. Ionescu-Bujor and D.G. Cacuci, "Adjoint Sensitivity Analysis of Thermal-Hydraulic Codes", ICONE-8, The 8th Int. Conf. on Nuclear Engineering, Track 11.B, #8730, April 2-6, 2000, Baltimore, M.D.

110. D.G. Cacuci and M. Ionescu-Bujor, "Adjoint Sensitivity Analysis of the RELAP5/MOD3.2 Two-Fluid Thermal-Hydraulic Code System: I. Theory", *Nucl. Sci. Eng.*, **136**, 59-84, (2000).

111. M. Ionescu-Bujor and D.G. Cacuci, "Adjoint Sensitivity Analysis of the RELAP5/MOD3.2 Two-Fluid Thermal-Hydraulic Code System: II. Applications", *Nucl. Sci. Eng.*, **136**, 85-121, (2000).

112. D.G. Cacuci, "Automated Dimensional Adaptive Switching and Adjoint Sensitivity Analysis: Innovative Features of the RELAP5/PANBOX/COBRA Code System for Multidimensional Reactor Safety Transients", *Nucl. Eng. Des.*, **202**, 325-338 (2000).

113. M. Ionescu-Bujor and D.G. Cacuci, "New Capabilities for Coupled Neutron-Kinetics/Thermal-Hydraulics Code Systems: Adjoint Sensitivity Analysis", "The Fourth International Conference on Supercomputing in Nuclear Applications", SNA 2000, September 4-7, 2000, Tokyo, Japan, Diskette RE-2-G1, p114 (12 pages total), 2000.

114. W. Sabisch, M. Wörner, G. Grötzbach, and D.G. Cacuci,
"3D Volume-of-Fluid Simulation of a Wobbling Bubble in a Gas-Liquid System of Low Morton Number", E. E. Michaelidis, Ed., Proceedings of the Fourth International Conference on Multiphase Flow, ICMF-2001, New Orleans, LA, USA, May 27 – June 1, 2001, CD-ROM.

115. M. Wörner, W. Sabisch, G. Grötzbach, and D.G. Cacuci,
"Volume-Averaged Conservation Equations for Volume-of-Fluid Interface Tracking", E. E. Michaelidis, Ed., Proceedings of the Fourth International Conference on Multiphase Flow, ICMF-2001, New Orleans, LA, USA, May 27 – June 1, 2001, CD-ROM.

116. R. Dagan, D.G. Cacuci, and C.H.M. Broeders,
"On the use of Perturbation Theory for Dynamic Simulation of Accelerator-Driven Systems (ADS)", 17th Int. Conf. On Transport Theory, July 08-14, 2001, Imperial College, London.

117. W. Sabisch, M. Wörner, G. Grötzbach, and D.G. Cacuci,
"3D Volume-of-Fluid Simulation of a Wobbling Bubble in a Gas-Liquid System of Low Morton Number", *Chemie-Ingenieur-Technik*, **73**, 368-373, 2001.

118. Catalan, Michael A., Bruce R. Thompson, and Dan G. Cacuci,
"PIONEER: A Robot for Structural Assessment of the Chornobyl Shelter," No. PNNL-SA-34130. Pacific Northwest National Lab., Richland, WA (US), 2001.

119. B. Ghidersa, M. Wörner, and D.G. Cacuci,
"3-D Numerical Simulation of Gas-Liquid Two-Phase Flow in a Small Channel with Rectangular Cross Section", VDI-Conf. on Multiphase Flows, Madgeburg, Germany, March 5-7,2002.

120. D.G. Cacuci, M. Ionescu-Bujor, and X. Jin,
"Sensitivity Analysis of the QUENCH-04 Nuclear Safety Experiment Using the Adjoint Sensitivity Analysis Procedure (ASAP) in RELAP5/MOD3.2 Code System", PHYSOR 2002 Int. Conf. on the New Frontiers of Nuclear Technology: Reactor Physics, Safety and High-Performance Computing, CD-ROM - Session Index/Session 4D/Paper 4D-01, Seoul, Korea, October 7-10,2002.

121. D.G. Cacuci,
"On Perturbation Theory and Reactor Kinetics: From Wigner's Pile Period to Accelerator Driven System", **Eugene P. Wigner Keynote Lecture**, Invited Paper, PHYSOR 2002 Int. Conf. on the New Frontiers of Nuclear Technology: Reactor Physics, Safety and High-Performance Computing, CD-ROM - Session Index/Plenary Session-Keynote Speeches, Seoul, Korea, October 7-10, 2002.

122. B. Ghidersa, M. Wörner, and D.G. Cacuci,
"Numerical Simulation of Bubble-Train Flow in a Small Channel of Square Cross-Section", Proc. Int. German-Japanese Workshop on Multiphase Flow, Karlsruhe, Germany, August 2002, FZKA-Bericht 6759 (2002).

123. D.G. Cacuci and M. Ionescu-Bujor,
”Adjoint Sensitivity and Uncertainty Analysis for Reliability/Availability Models, with Application to the International Fusion Materials Irradiation Facility”, paper 2.2.4, A&QT-R 2002 (THETA 13), Int. Conf. On Automation, Quality and Testing, Robotics, May 23-25, 2002, Cluj-Napoca, Romania (2002).

124. D.G. Cacuci and K. Schubert,
“Microstructure Devices Designed and Manufactured at the Forschungszentrum Karlsruhe”, BIRAC, The 9th Int. Conf. “Efficiency, Comfort, Energy Conservation and Environment Protection”, Bucharest, Romania, November 27-29, 2002.

125. C. Bitea, C. Walther, J.I. Kim, H. Geckeis, Th. Rabung, F.J. Scherbaum, and D.G. Cacuci,
„Time-Resolved Observation of ZrO_2-Colloid Agglomeration”, *Int. J. Colloids and Surfaces A*, **215**, 55-66 (2003).

126. M. Ilic, M. Wörner, and D.G. Cacuci,
“Quantitative Analysis of Liquid Phase Turbulence Kinetic Energy Equation Using DNS Data of Bubble-Train Flow”, ICONE-11, The 11th Int. Conf. on Nuclear Engineering, Tokyo, Japan, April 20-23, 2003.

127. C. Rubbia, S. Monti, M. Salvatores, A. d’Angelo, G. Bignan, N. Burgio, D. Cacuci, J. Cahalan, M. Carta, P. Fougeras, G. Granget, G. Imel, C. Jammes, Y. Kadi, J. Knebel, S. Maloy, D.G. Naberejnev, H. Philibert, and P. Ravetto,
„TRADE: A Full Experimental Validation of the ADS Concept in a European Perspective“, AccApp’03, Embedded Topical Meeting on Accelerator Applications of Nuclear Technology, San Diego, California, June 1-5, 2003.

128. B. E. Ghidersa, M. Wörner, and D.G. Cacuci,
“Exploring the Flow of Immiscible Fluids in a Square Vertical Mini-Channel by Direct Numerical Simulation”, 7th Int. Conf. on Microreaction Technology, Lausanne, September 7-10, 2003.

129. M. lonescu-Bujor and D.G. Cacuci,
“Illustrative Application of the Adjoint Sensitivity Analysis Procedure to Reliability Models of Electro-Mechanical Devices”, SIELMEN 2003 “The 4th Int. Conf. on Electromechanical and Energetic Systems, Chisinau, September 26-27, 2003.

130. A. Latrobe, C. Chauliac, and D.G. Cacuci,
“NUclear REactor SIMulation: The Software Platform Approach Towards a Reinforced European Reactor Modeling Research Area”, Int. Conf. FISA-2003 EU Research in Reactor Safety,10-13 November, 2003, EC Luxemburg.

131. D.G. Cacuci,
“Some Issues of Special Current Concern Regarding US-Germany Cooperation in Nuclear Research and Education”, Int. Conf. FISA-2003 EU Research in Reactor Safety,10-13 November, 2003, EC Luxemburg.

132. D. Cacuci, F. D'Auria, Y. Hassan, K. Ivanov, C. Solima, R. Uddin, G. Verdu,
"Energy and Safety Culture Across the Atlantic", Int. Conf. FISA-2003 EU Research in Reactor Safety,10-13 November, 2003, EC Luxemburg.

133. M. Ionescu-Bujor and D.G. Cacuci,
"Adjoint Sensitivity Analysis of Reliability Models, with Applications to IFMIF", ANS/ENS 2003 Winter Meeting, New Orleans, Louisiana, November 16-20, 2003.

134. D. G. Cacuci, M. Ionescu-Bujor, and X. Jin,
"Current Status of Deterministic Sensitivity Analysis of Coupled Core Physics/Thermal-Hydraulics/Heat Structures Codes Systems", International Atomic Energy Agency Technical Meeting on Progress in Development and Use of Coupled Codes for Accident Analysis, Vienna, Austria, November 26-28, 2003.

135. M. Ilic, M. Wörner, and D. G. Cacuci,
"Balance of Liquid-Phase Turbulence Kinetic Energy Equation for Bubble-Train Flow", *J. Nucl. Sci. Technology*, **41**, 331-338, 2004.

136. B. E. Ghidersa, M. Wörner, and D.G. Cacuci,
"Exploring the Flow of Immiscible Fluids in a Square Vertical Mini-Channel by Direct Numerical Simulation", *Chem. Eng. Journal*, **101**, 285-294, 2004.

137. M. Ionescu-Bujor and D.G. Cacuci,
"A Comparative Review of Sensitivity and Uncertainty Analysis of Large-Scale Systems: I. Deterministic Methods"*, Nucl. Sci. Eng.*, **147**, 189-203, 2004.

138. D.G. Cacuci and M. Ionescu-Bujor,
"A Comparative Review of Sensitivity and Uncertainty Analysis of Large-Scale Systems: II. Statistical Methods"*, Nucl. Sci. Eng.*, **147**, 203-217, 2004.

139. D.G. Cacuci, D. Struwe, W. Hering, Ch. Homan, M. Ionescu-Bujor, X. Jin, and V. Sanchez-Espinoza,
"Untersuchungen von Auslegungs- und schweren Störfällen in Leichtwasserreaktoren", FZK Nachrichten, Jahrg. 36, 2/2004, p. 73-79, ISBN 0948-0919, Forschungszentrum Karlsruhe, Germany, 2004.

140. B. E. Ghidersa, M. Wörner and D. G. Cacuci,
"Numerical Simulation of Bubble-Train Flow with Heat Transfer in a Square Mini-Channel", Matsumoto, Y. (Ed), Proc. 5th Int. Conf. on Multiphase Flow (ICMF-2004), Yokohama, Japan, May 30 – June 4, 2004, CD-ROM Paper 567.

141. D.G. Cacuci,
"On the Neutron Kinetics and Control of Accelerator Driven Systems", *Nucl. Sci. Eng.*, **148**, 55-66, 2004.

142. Martin Wörner, Bradut E. Ghidersa, Milica Ilić, and Dan G. Cacuci, "Volume-of-Fluid Method Based Numerical Simulations of Gas-Liquid Two-Phase Flow in Confined Geometries", IAHR-2004 Int. Conf. on Advances in the Modeling Methodologies of Two-Phase Flows, Lyons, France, November 24-26, 2004, CD-ROM Paper 04 (ISBN 2-906831-60-3).

143. D.G. Cacuci and M. Ionescu-Bujor, "Deterministic Local Sensitivity Analysis of Augmented Systems. I: Theory", *Nucl. Sci. Eng.*, **151**, 55-66, 2005.

144. M. Ionescu-Bujor, X. Jin, and D.G. Cacuci, "Deterministic Local Sensitivity Analysis of Augmented Systems. II: Applications to the QUENCH-04 Experiment using the RELAP5/MOD3.2 Code System", *Nucl. Sci. Eng.*, **151**, 67-81, 2005.

145. B. R. Merk and D. G. Cacuci, "Multiple-Scale Approximate Solutions for the Time Dependent Boltzmann Equation: Part I – Multiple-Scale Point Kinetics Equations", *Nucl. Sci. Eng.*, **151**, 184-193, 2005.

146. B. R. Merk and D. G. Cacuci, "Multiple-Scale Approximate Solutions for the Time Dependent Boltzmann Equation: Part II – Multiple-Scale P_1 and P_3 Equations", *Nucl. Sci. Eng.*, **151**, 194-211, 2005.

147. B. Merk and D. G. Cacuci "Multi-Scale Functions for Time-Dependent Neutron Physics Calculations", Jahrestagung Kerntechnik 2005, 10-12 May, 2005, Nürnberg, Germany, 2005.

148. B. Merk and D. G. Cacuci "Multi-Scale Approximations of the Time-Dependent Boltzmann Equation", ANS 2005 National Annual Meeting, June 5-9, 2005, San Diego, California, 2005.

149. G. Cognet, P.Ledermann, and D.G. Cacuci "Considerations for a Sustainable Nuclear Fission Energy in Europe", Int. Conference "Nuclear Energy for New Europe 2005", Bled, Slovenia, September 5-8, 2005.

150. B. Merk and D. G. Cacuci "Multiple Time-Scale Approximations for the Time Dependent P1 and P3 Equations", Int. Topical Meeting "Supercomputing, Reactor Physics and Nuclear and Biological Applications", Palais des Papes, Avignon, France, September 12-15, 2005, on CD-ROM, American Nuclear Society, LaGrange Park, IL, 2005.

151. B. A. Nichita, F. Chiriac, and D. G. Cacuci "Heat Transfer and Fluid Flow in a Counter Flow Micro Heat Exchanger", ECI International Conference on Heat Transfer and Fluid Flow in Microscale, 25-30 September 2005, Castelvecchio Pascoli, Italy, 2005.

152. M. Ilic, M. Wörner, and D.G. Cacuci
”Investigations of Liquid Phase Turbulence Boased on Direct Numerical Simulations of Bubbly Flow”, The 11th Int. Topical Meeting on Nuclear Thermal Hydraulics (NURETH-11), October 2-6, 2005, Avignon, France, 2005.

153. M. Wörner, B. E. Ghidersa, and D. G. Cacuci
”Numerische Untersuchungen der Strömung von Taylor-Blasen in einem Kanal mit Quadratischem Querschnitt“, *Chemie Ingenieur Technik*, **77**, 1064, 2005.

154. M. Wörner, B. E. Ghidersa, M. Ilic, and D. G. Cacuci
”Volume-of-Fluid Method based Numerical Simulations of Gas-Liquid Two-Phase Flow in Confined Geometries”, La Houille Blanche, 6, 91-104, 2005.

155. D. G. Cacuci, J. M. Aragones, D. Bestion, P. Coddington, L. Dada, and C. Chauliac
”NURESIM: A European Platform for Nuclear Reactor Simulation”, FISA 2006, Int. Conference on EU Research and Training in Reactor Systems, Organized by the European Commission, March 13-16, 2006, Luxembourg.

156. Philip T. Martien, Robert A. Harley and Dan G. Cacuci
“Adjoint Sensitivity Analysis of a Three-Dimensional Photochemical Model: Implementation and Method Comparison”, *Environ. Sci. Technol.*, **40**(8), 2663-2670, 2006 (DOI: 10.1021/es0510257).

157. Dan G. Cacuci, Patrick Ledermann and Franck Carre
”Sustainable Nuclear Fission Technology Platform”, ENERGEX 2006 – Energy Systems in Transition Towards a Sustainable Development, June 12 -15, 2006, Stavanger, Norway.

158. Dan G. Cacuci,
”Current International Initiatives for Sustainable Nuclear Energy“, IUC Int. Conf. Advances in New and Sustainable Energy Conversion and Storage Technologies, 23-25 September 2006, Dubrovnik, Croatia.

159. Dan Gabriel Cacuci,
”On the Role of Validated Simulations Within the European Nuclear Fission Technology Platform”, Joint Int. Topical Meeting on Mathematics & Computation and Supercomputing in Nuclear Applications (M&C + SNA 2007), Monterey, California, April 15-19, 2007, on CD-ROM, American Nuclear Society, LaGrange Park, IL, 2007.

160. D. G. Cacuci,
”Data Assimilation and Best-Estimate Model Validation Activities in the EURATOM Fission Programs”, 5th Int. Conf. on Sensitivity Analysis of Model Output (SAMO-2007), June 18-22, 2007, Budapest, Hungary.

161. Milica Ilic, Martin Wörner, and Dan Gabriel Cacuci
”Evaluation of Energy Spectra in Bubble Driven Flows From Direct Numerical Simulations”, Int. Conf. on Multiphase Flow, ICMF 2007, Leipzig, Germany, July 9-13, 2007.

162. Alexandru Onea, Martin Wörner, and Dan Gabriel Cacuci
”Numerical Investigation of Interfacial Mass Transfer in Bubble Train Flow Within a Square Mini-Channel”, Int. Conf. on Multiphase Flow, ICMF 2007, Leipzig, Germany, July 9-13, 2007.

163. Francesco D’Auria, Dan Cacuci, and Alessandro Petruzzi,
” Approaches for Computing Uncertainties in Predictions of Complex-Codes”, Int. Nuclear Atlantic Conference INAC 2007, September 30 – October 5, 2007, Sao Paulo, Brazil.

164. D. G. Cacuci
“Sustainable Nuclear Fission Technology Platform”, *The Parliament*, **35**, 255**,** 2007.

165. D. G. Cacuci, and M. Ionescu-Bujor,
”Adjoint Sensitivity Analysis of Dynamic Reliability Models based on Markov Chains: Theory”, *Nucl. Sci. Eng.*, **158**, 97-113, 2008.

166. D. G. Cacuci, I. Balan and M. Ionescu-Bujor,
”Adjoint Sensitivity Analysis of Dynamic Reliability Models based on Markov Chains: Application to a Model of the International Fusion Materials Irradiation Facility”, *Nucl. Sci. Eng.*, **158**,114-153, 2008.

167. Dan Gabriel Cacuci,
“The Role of the Sustainable Nuclear Fission Technology Platform Coordination Action within the EURATOM-Fission Program”, *European Union Review*, June 2008.

168. Dan G. Cacuci and Mihaela Ionescu-Bujor,
“Adjoint Markov Chains for Sensitivity Analysis of Dynamic Reliability Models,” PSA-2008 Int. Conf. on Probabilistic Safety Assessment and Analysis, Knoxville, Tennessee, September 7-11, 2008.

169. Jose-Javier Herrero, A.F. Badea and D.G. Cacuci,
“Sensitivity Analysis and Cross Section Data Adjustment for Multigroup Transport and Diffusion”, FP 437, Proceedings of the PHYSOR-08 International Conference on the Physics of Reactors “Nuclear Power: A Sustainable Resource”, September 14-19, 2008, Interlaken, Switzerland (CD-ROM), PSI Proceedings 08-02, ISBN 978-3-9521409-5-6, Editors: Rakesh Chawla, Vinh N. Dang, and Konstantin Mikityuk (PSI).

170. Aurelian Florin Badea and Dan G. Cacuci,
“Time-Dependent Model Calibration Through Consistent Data Assimilation”, FP 619, Proceedings of the PHYSOR-08 International Conference on the Physics of Reactors “Nuclear Power: A Sustainable Resource”, September 14-19, 2008, Interlaken, Switzerland (CD-ROM), PSI Proceedings 08-02, ISBN 978-3-9521409-5-6, Editors: Rakesh Chawla, Vinh N. Dang, and Konstantin Mikityuk (PSI).

171. Dan G. Cacuci, Sergey Ostapchenko, and A. Florin Badea,
“Global Adjoint Sensitivity Analysis and Optimization: Computation of Critical Points,” FP 634, Proceedings of the PHYSOR-08 International Conference on the Physics of Reactors “Nuclear Power: A Sustainable Resource”, September 14-19, 2008, Interlaken, Switzerland (CD-ROM), PSI Proceedings 08-02, ISBN 978-3-9521409-5-6, Editors: Rakesh Chawla, Vinh N. Dang, and Konstantin Mikityuk (PSI).

172. Alexandru Onea, Martin Wörner, and Dan G. Cacuci,
A Qualitative Computational Study of Mass Transfer in Upward Bubble Train Flow Through Square and Rectangular Mini-Channels, *Chemical Engineering Science*, **64, Nr. 7**, 1416-1435, 2009.

173. Christian Chauliac, José-Maria Aragonés, Dominique Bestion, Dan Gabriel Cacuci, Nicolas Crouzet, Frank-Peter Weiss, Martin A. Zimmermann,
"NURESIM – A European Software Platform for Nuclear Reactor Simulation", M&C 2009, Saratoga Springs, NY, May 3-7, 2009.

174. A.Petruzzi, F. D'Auria, and D. G. Cacuci,
"Best-Estimate Plus Uncertainty Methodologies: Existing Tools and New Frontiers", M&C 2009, Saratoga Springs, NY, May 3-7, 2009.

175. Christian Chauliac, José-Maria Aragonés, Dominique Bestion, Dan Gabriel Cacuci, Nicolas Crouzet, Frank-Peter Weiss, Martin A. Zimmermann,
"NURESIM – A European Simulation Platform for Nuclear Reactor Safety: Multi-Scale and Multi-Physics Calculations, Sensitivity and Uncertainty Analysis", FISA-2009, June 22-25, Prague.

176. A. Petruzzi, D. G. Cacuci, and F. D'Auria,
"Deterministic Sensitivity and Uncertainty Methodology for Best Estimate System Codes Applied in Nuclear Technology", The 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-13), Kanazawa City, Japan, September 27-October 2, 2009.

177. D. G. Cacuci, and M. Ionescu-Bujor,
"Time-Dependent Model Calibration and Best-Estimate Prediction", NRC Conf. on "Model Uncertainty: Conceptual and Practical Issues in Risk-Informed Decision Making Context", Annapolis, Maryland, May 19-21, 2009.

178. D. G. Cacuci, and M. Ionescu-Bujor,
"On the Evaluation of Discrepant Scientific Data with Unrecognized Errors", *Nucl. Sci. Eng.*, **165**, 1-17, 2010.

179. D. G. Cacuci, and M. Ionescu-Bujor,
"Model Calibration and Best-Estimate Prediction Through Experimental Data Assimilation: I. Mathematical Framework", *Nucl. Sci. Eng.*, **165**, 18-44, 2010.

180. A. Petruzzi, D. G. Cacuci, and F. D'Auria,
"Model Calibration and Best-Estimate Prediction Through Experimental Data Assimilation: II. Application to a Blowdown Benchmark Experiment", *Nucl. Sci. Eng.*, **165**, 45-100, 2010.

181. B. Chanaron, C. Ahnert, D. Bestion, M. Zimmermann, D. Cacuci, and N. Crouzet,
"The European Project NURISP for Nuclear Reactor Simulation", *Trans. Am. Nucl. Soc.*, **103**, 671 (2010).

182. Josh Hykes, Dan G. Cacuci, and John Mattingly,
"Data Assimilation Applied to a Simple Inverse Radiation Transport Problem", *Trans. Am. Nucl. Soc.*, **105**, 518 (2011).

183. Christian Chauliac, José-Maria Aragonés, Dominique Bestion, Dan Gabriel Cacuci, Nicolas Crouzet, Frank-Peter Weiss, Martin A. Zimmermann
"NURESIM – A European simulation platform for nuclear reactor safety: Multi-scale and multi-physics calculations, sensitivity and uncertainty analysis", *Nucl. Eng. Design*, **241**(9), 3416-3426, 2011.

184. C. Latten and D. G. Cacuci,
"High-Order Response Moments for Model Uncertainty Quantification and Validation", *Trans. Am. Nucl. Soc.*, **106.1**, 759, 2012.

185. R. T. Evans, D. G. Cacuci,
"A Novel Krylov Adjoint Method for the Computation of Sensitivities in Eigenvalue Problems", *Trans. Am. Nucl. Soc.*, **106.1,** 401, 2012.

186. W. C. Proctor, R. T. Evans, D. G. Cacuci,
"Best-Estimate Model Calibration through First-Order Experimental Data Assimilation with Applications to Neutron Transport via Denovo", *Trans. Am. Nucl. Soc.*, **106.1**, 884, 2012.

187. W. C. Proctor, R. T. Evans, D. G. Cacuci,
"Second-Order Sensitivity Analysis of Godiva and Jezebel Experimental Benchmarks", *Trans. Am. Nucl. Soc.*, **106.1,** 429, 2012.

188. M. C. Badea, D.G. Cacuci, and A.F. Badea,
"Best-Estimate Predictions and Model Calibration for Reactor Thermal-Hydraulics", *Nucl. Sci. Eng*., **172**, 1-19, 2012.

189. R. T. Evans and D. G. Cacuci,
"A Parallel Krylov-Based Adjoint Sensitivity Analysis Procedure", *Nucl. Sci. Eng*., **172**, 216-222, 2012.

190. A.F. Badea, D.G. Cacuci, and M.C. Badea,
"Uncertainty Reduction in Calibrated FLICA4 Thermal-Hydraulics Computational Predictions Following Assimilation of Multiple BFBT Benchmark Experimental Data", The 15th Int. Topical Meeting on Nuclear Reactor Thermal-Hydraulics, NURETH-15, Pisa, Italy, May 12-15, 2013.

191. A.F. Badea and D.G. Cacuci,
"Uncertainty Reduction in Coupled Neutron-Kinetics / Thermal-Hydraulics Computational Predictions Following Assimilation of BWR-TT Benchmark Experimental Data", The 15th Int. Topical Meeting on Nuclear Reactor Thermal-Hydraulics, NURETH-15, Pisa, Italy, May 12-15, 2013.

192. F. Fang, C. C. Pain, I. M. Navon, D. G. Cacuci, X. Chen,
"The Independent Set Perturbation Method for Efficient Computation of Sensitivities with Applications to Data Assimilation and a Finite Element Shallow Water Model", *Computers & Fluids* (2013), Vol. **76**, 33-49, 2013.
doi: http://dx.doi.org/10.1016/j.compfluid.2013.01.025

193. R. T. Evans, J. K. Mattingly, and D. G. Cacuci,
"Sensitivity Analysis and Data Assimilation in a Subcritical Plutonium Metal Benchmark, *Nucl. Sci. Eng*., **176**, 325–338, 2014.

194. D. G. Cacuci and E. Arslan,
"Reducing Uncertainties via Predictive Modeling: FLICA4 Calibration Using BFBT Benchmarks", *Nucl. Sci. Eng.*, **176**, 339–349, 2014.

195. E. Arslan and D. G. Cacuci,
”Predictive Modeling of Liquid-Sodium Thermal-Hydraulics Experiments and Computations”, *Annals of Nucl. Energy*, **63C**, 355-370, 2014.

196. Jewer S, Buchan AG, Pain CC, Cacuci DG,
“An Immersed Body Method for Coupled Neutron Transport and Thermal Hydraulic Simulations of PWR Assemblies”, *Annals of Nuclear Energy*, **68**, 124–135, 2014.

197. D. G. Cacuci,
”Predictive Modeling of Coupled Multi-Physics Systems: I. Theory”, *Annals of Nuclear Energy*, **70**, 266–278, 2014.

198. D. G. Cacuci and M. C. Badea,
”Predictive Modeling of Coupled Multi-Physics Systems: II. Illustrative Applications to Reactor Physics”, *Annals of Nuclear Energy*, **70,** 279–291, 2014.

199. C. Latten and D. G. Cacuci,
”Predictive Modeling of Coupled Systems: Uncertainty Reduction Using Multiple Reactor Physics Benchmarks”, *Nucl. Sci. Eng*., **178**, 156–171 (2014).

200. D. G. Cacuci,
”On the Ill-Posed Nature of Inverse Problems: An Exactly Solvable Paradigm Inverse Neutron Diffusion Problem Illustrating the Solution’s Non-Computability”, ANS RPSD 2014 - 18th Topical Meeting of the Radiation Protection & Shielding Division of ANS, Knoxville, TN, September 14 – 18, 2014, on CD-ROM, American Nuclear Society, LaGrange Park, IL (2014).

201. D.G. Cacuci,
“Efficient and Exact Computation of Second-Order Response Sensitivities Using Adjoint Systems: A Paradigm Illustrative Neutron Diffusion Problem,” *Trans. Am. Nucl. Soc.*, Track 11528, Anaheim, CA, 2014.

202. D.G. Cacuci and M. C. Badea,
“On the Importance of Second-Order Response Derivatives for Quantifying Non-Gaussian Features of Computed Model Responses,” *Trans. Am. Nucl. Soc.*, Track 11185, Anaheim, CA, 2014.

203. D.G. Cacuci, A. F. Badea, and M. C. Badea
“Thermal Solar Collector Predictive Modeling: I. Adjoint Sensitivity Analysis,” *Trans. Am. Nucl. Soc.*, Track 11358, Anaheim, CA, 2014.

204. A. F. Badea, D.G. Cacuci and M. C. Badea,
“Thermal Solar Collector Predictive Modeling: II. Data Assimilation, Model Calibration, and Best-Estimate Predictions with Reduced Uncertainties,” *Trans. Am. Nucl. Soc.*, Track 11359, Anaheim, CA, 2014.

205. Buchan AG, Jewer S, Farrell PE, Pain CC, Cacuci DG, Moatamedi Mclose,
“Simulating coupled neutron-fluid-heat transfer for the study of unintended operating scenarios in pressure water reactors using an immersed body modelling technique,” NAFEMS, 2014, Manchester

206. D.G. Cacuci,
"Second-Order Adjoint Sensitivity Analysis Methodology (2nd-ASAM) for Computing Exactly and Efficiently First- and Second-Order Sensitivities in Large-Scale Linear Systems: I. Computational Methodology", *J. Comp. Phys.*, **284**, 687–699, 2015.

207. D.G. Cacuci,
"Second-Order Adjoint Sensitivity Analysis Methodology (2nd-ASAM) for Computing Exactly and Efficiently First- and Second-Order Sensitivities in Large-Scale Linear Systems: II. Illustrative Application to a Paradigm Particle Diffusion Problem," *J. Comp. Phys*., **284**, 700–717, 2015.

208. Kenneth L. Reifsnider, Dan G. Cacuci, Jeffrey Baker, Jon.M. Adkins, and Fazle Rabbi
"Validated predictive computational methods for surface charge in heterogeneous functional materials: HeteroFoaM™", *Mechanics of Advanced Materials and Modern Processes*, (2015) 1:3, DOI 10.1186/s40759-014-0001-y.

209. Rassel Raihan, Kenneth Reifsnider, Dan Cacuci, and Qianlong Liu
"Dielectric signatures and interpretive analysis for changes of state in composite materials", *Z. Angew. Math. Mech*., 1–9 (2015) / DOI 10.1002/zamm.201400226

210. Dan G. Cacuci and Aurelian F. Badea
"Predictive Modeling Methodology for Obtaining Optimally Predicted Results with Reduced Uncertainties: Illustrative Application to a Simulated Solar Collector Facility Solar Energy," *Solar Energy*, **119** 486–506, 2015.

211. Dan Gabriel Cacuci,
"Second-Order Adjoint Sensitivity Analysis Methodology (2nd-ASAM) for Computing Exactly and Efficiently First- and Second-Order Sensitivities in Large-Scale Systems", International Conference on Nuclear Criticality Safety ICNC 2105, September 13-17, 2015, Charlotte, NC, USA.

212. Dan G. Cacuci, James J. Peltz, Aurelian F. Badea, and Madalina C. Badea,
"Spent Fuel Dissolver Predictive Modeling: I. Application of the Adjoint Sensitivity Analysis Methodology for Nonlinear Systems with Operator-Type Responses," *Trans. Am. Nucl. Soc.*, Track 14894, Washington, DC, 2015.

213. James J. Peltz, Aurelian F. Badea, Madalina C. Badea, and Dan G. Cacuci,
"Spent Fuel Dissolver Predictive Modeling: II. Uncertainty Reduction via Experimental Data Assimilation", *Trans. Am. Nucl. Soc.*, Track 14895, Washington, DC, 2015.

214. Dan G. Cacuci, Ruixian Fang, Madalina C. Badea, and Milica Ilic,
"A Heat Transport Analytical Benchmark Problem for Sensitivity Analysis, Uncertainty Quantification and Predictive Modeling. I: Verification of the FLUENT Adjoint Solver," *Trans. Am. Nucl. Soc.*, Track 14896, Washington, DC, 2015.

215. Madalina C. Badea and Dan G. Cacuci,
"A Heat Transport Analytical Benchmark Problem for Sensitivity Analysis, Uncertainty Quantification, and Predictive Modeling. II: Best Estimate Predictions with Reduced Uncertainties," *Trans. Am. Nucl. Soc.*, Track 14897, Washington, DC, 2015.

216. Dan G. Cacuci,
"A Heat Transport Analytical Benchmark Problem for Sensitivity and Uncertainty Analysis. III: Using the 2nd-ASAM to Quantify the Impact of Second-Order Sensitivities and Uncertainties," *Trans. Am. Nucl. Soc.*, Track 14898, Washington, DC, 2015.

217. Dan G. Cacuci,
"A Heat Transport Benchmark Problem for Predicting the Impact of Measurements on Thermal-Hydraulics Experimental Facility Design," *Nuclear Engineering and Design*, **300,** 12–27. 2016.

218. Dan G. Cacuci, Ruixian Fang, Milica Ilic, and Madalina C. Badea,
"A Heat Conduction and Convection Analytical Benchmark for Adjoint Solution Verification of CFD Codes Used in Reactor Design," *Nucl. Sci. Eng*., **182**, 452-480, 2016. DOI 10.13182/NSE15-69

219. Dan G. Cacuci,
"Second-Order Adjoint Sensitivity and Uncertainty Analysis of a Benchmark Heat Transport Problem: I. Analytical Results," *Nucl. Sci. Eng*., **183**, 1-21, 2016. DOI 10.13182/NSE15-80.

220. J. J. Peltz, M. C. Badea, D. G. Cacuci, and A. F. Badea
"Predictive Modeling of a Paradigm Spent Fuel Dissolver", 2016 International Congress on Advances in Nuclear Power Plants (ICAPP), April 17-20, 2016.

221. Dan G. Cacuci, Milica Ilic, Madalina C. Badea, and Ruixian Fang,
"Second-Order Adjoint Sensitivity and Uncertainty Analysis of a Benchmark Heat Transport Problem: II. Computational Results for G4M Reactor Thermal-Hydraulics Parameters," *Nucl. Sci. Eng*., **183**, 22-38, May 2016. DOI 10.13182/NSE15-81.

222. James J. Peltz and Dan G. Cacuci
"Predictive Modeling Applied to a Paradigm Spent Fuel Dissolver Model: I. Adjoint Sensitivity Analysis," *Nucl. Sci. Eng.,* **183**, 305-331. dx.doi.org/10.13182/NSE15-98.

223. James J. Peltz, Dan G. Cacuci, Aurelian F. Badea, and Madalina C. Badea,
"Predictive Modeling Applied to a Paradigm Spent Fuel Dissolver Model: II. Uncertainty Quantification and Reduction," *Nucl. Sci. Eng.,* **183**, 332-346. dx.doi.org/10.13182/NSE15-99.

224. Dan G. Cacuci, Aurelian F. Badea, Madalina C. Badea, and James J. Peltz,
"Efficient Computation of Operator-Type Response Sensitivities for Uncertainty Quantification and Predictive Modeling: Illustrative Application to a Spent Nuclear Fuel Dissolver Model," *International Journal for Numerical Methods in Fluids*, Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/fld.4258, June 2016.

225. J. J. Peltz and D. G. Cacuci
"Inverse Predictive Modeling of a Spent Fuel Dissolver Model," *Nucl*. *Sci. Eng*, **184**,1–15, 2016.

226. Dan G. Cacuci,
"Second-Order Adjoint Sensitivity Analysis Methodology (2nd-ASAM) for Large-Scale Nonlinear Systems: I. Theory," *Nucl*. *Sci. Eng*, **184**,16–30, 2016.

227. Dan G. Cacuci,
"Second-Order Adjoint Sensitivity Analysis Methodology (2nd-ASAM) for Large-Scale Nonlinear Systems: II. Illustrative Application to a Paradigm Nonlinear Heat Conduction Benchmark," *Nucl*. *Sci. Eng*, **184**, 31-52, 2016.

228. D. G. Cacuci,
"Second-Order Adjoint Sensitivity Analysis Methodology (2nd-ASAM) Applied to Quantification of Non-Gaussian Uncertainties in a Nonlinear Heat Conduction Benchmark", *Advances in Nuclear Nonproliferation Technology and Policy Conference (ANTPC)*, Paper #18657, September 25-30, 2016.

229. Dan G. Cacuci and Ruixian Fang,
"Predictive Modeling of a Paradigm Mechanical Cooling Tower: I. Adjoint Sensitivity Model", *Energies*, **9**, 718-763, 2016; doi:10.3390/en9090718 2016.

230. Ruixian Fang, Dan G. Cacuci and Madalina C. Badea,
"Predictive Modeling of a Paradigm Mechanical Cooling Tower: II. Optimal Best-Estimate Results with Reduced Predicted Uncertainties", *Energies*, **9**, 764-813, 2016.

231. Federico Di Rocco and Dan G. Cacuci,
Predictive Modeling of a Buoyancy-Operated Cooling Tower Under Unsaturated Conditions: Adjoint Sensitivity Model and Optimal Best-Estimate Results With Reduced Predicted Uncertainties, *Energies*, **9**, 1028; doi:10.3390/en9121028, 1-52, 8 December 2016.

232. A. F. Badea and D. G. Cacuci,
"Predictive Uncertainty Reduction in Coupled Neutron-Kinetics / Thermal Hydraulics Modeling of the BWR-TT2 Benchmark", *Nuclear Engineering and Design*, **313,** 330–344, 2017.

233. Dan G. Cacuci,
A Paradigm-Shifting Methodology for Sensitivity Analysis of Multiplying Nuclear Systems, *Nucl. Sci. Eng*, **185**, 361–383, 2017.

234. Dan G. Cacuci and Federico Di Rocco,
Predictive Modeling of a Buoyancy-Operated Cooling Tower Under Saturated Conditions: I. Adjoint Sensitivity Model, *Nucl. Sci. Eng*, **185**, 484–548, 2017.

235. Federico Di Rocco, Dan G. Cacuci and Madalina C. Badea,
Predictive Modeling of a Buoyancy-Operated Cooling Tower Under Saturated Conditions: II. Optimal Best-Estimate Results with Reduced Predicted Uncertainties, *Nucl*. *Sci. Eng*, **185**, 549–603, 2017.

236. Dan G. Cacuci and Ruixian Fang,
"Sensitivity and Uncertainty Analysis of Counter-Flow Mechanical Draft Cooling Towers: I. Adjoint Sensitivity Analysis," *Nuclear Technology*, **198**, 85-131, 2017.

237. Ruixian Fang, Dan G. Cacuci and Madalina C. Badea,
"Sensitivity and Uncertainty Analysis of Counter-Flow Mechanical Draft Cooling Towers: II. Predictive Modeling", *Nuclear Technology*, **198**, 132-192, 2017.

238. Dan G. Cacuci,
"Inverse Predictive Modeling of Radiation Transport Through Optically Thick Media in the Presence of Counting Uncertainties," *Nucl*. *Sci. Eng*, http://dx.doi.org/10.1080/00295639.2017.1305244, 20 May 2017.

239. Dan Gabriel Cacuci and Jeffrey A. Favorite,
"Second-Order Sensitivity Analysis of Uncollided Particle Contributions to Radiation Detector Responses," *Nucl*. *Sci. Eng*, accepted, December 2017.

240. Ruixian Fang and Dan Gabriel Cacuci,
"Predictive Modeling of a Paradigm Mechanical Cooling Tower," International Congress on Advances in Nuclear Power Plants (ICAPP) accepted, Charlotte, NC, USA, April 8-11, 2018.