

**Dr. Dan M. Ghiocel**  
**President & Chief of Engineering**  
**Ghiocel Predictive Technologies, Inc. and**

**Adjunct Professor in Structural Engineering**  
**Case Western Reserve University**  
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#### **BRIEF PROFESSIONAL PROFILE**

Dr. Ghiocel is currently the President and Chief of Engineering with Ghiocel Predictive Technologies, Inc. with office in Rochester NY. Ghiocel Predictive Technologies, Inc. (<http://www.ghiocel-tech.com>) is a small business corporation specialized in computational modeling and prediction for high-complexity engineering problems. Dr. Ghiocel has more than 35 years of extensive research lab, university research and consulting engineering experience in advanced computational structural/mechanical analysis for systems and components, structural dynamics, seismic soil-structure interaction (SSI), damage mechanics, probabilistic risk assessment and component life prediction. Dr. Ghiocel has accumulated a large experience in implementation and use of advanced engineering computational approaches for complex systems such as nuclear facilities, safety-related structures and systems, aircraft and automotive structures and jet engine systems. Dr. Ghiocel immigrated into United States from Romania in 1991. He is an US Citizen since 2001.

#### Nuclear Industry Consultant Experience

Dr. Ghiocel is an internationally recognized expert and an active member of the ASCE DANS (Dynamic Analysis of Nuclear Structures) committee that produces the ASCE 4 and ASCE 43 standards on *Seismic Analysis and Design Criteria for Nuclear Facility Structures* in United States. His contributions to these standards are primarily related to seismic SSI analysis and probabilistic modeling and simulations. Dr. Ghiocel has also joined the Canadian Standard Association technical committee for the development of the new Canadian CSA289.3-2020 standard applicable to CANDU NPPs for which he drafted the new Annex B on “Seismic Soil-Structure Interaction”.

Over more than 35 years, Dr. Ghiocel has performed many projects for nuclear facilities for power and defense industries. He has offered consulting services for structural analysis and design of reinforced concrete, steel and masonry structures, fragility (risk) analyses and risk assessment for nuclear power plant (NPP) structures, stochastic modeling of loads and material behavior, nonlinear finite element analyses, design optimization, dynamic soil-structure interaction. He started to work for the nuclear industry since 1981, in Romania. In 1982, he was the technical lead engineer for an important nuclear project study that investigated the seismic SSI dynamic behavior of the CANDU 6 NPP for softer soil conditions, including the Cernavoda and Transilvania CANDU 6 plant sites. He was involved in various CANDU related projects for the CNE Transilvania projects (ISPE/IRNE Program Manager Traian Mauna) until 1990, after which he emigrated to US.

In 1986, he was appointed the Manager of the Evaluation of QA for Cernavoda NPP Division at Central Laboratory of Minister of Industrial Constructions (MC Ind) with responsibilities of seismic SSI studies and QA implementation aspects for the Cernavoda CANDU NPP Units 1-5. In 1987, per order of the Minister of Industrial Constructions (MC Ind) he was appointed to be a expert member of the MC Ind National Commission for safety analyses and nonconformities resolutions for the Cernavoda CANDU NPP Units 3 and 5 (Chaired by MC Ind Director General Cmit).

By late 1987 he joined as Assistant Professor the Department of Civil Engineering of Technical University of Bucharest (former ICB).

After he completed his Ph.D. degree in Structural Engineering in 1993 in USA, he joined Stevenson & Associates, Inc. a US top consulting nuclear company where he worked until late 1997. Since 1995, as a close collaborator of Dr. John D. Stevenson, Consulting Engineer, he started to be involved as an outside expert in a series of independent reviews for the Defense Nuclear Facility Safety Board (DNFSB) for seismic SSI analyses of various nuclear defense facilities, until 2013. During 1996-1997 years he was the Principal Investigator of a NSF-funded research project on probabilistic seismic SSI and blast effects for the underground hazardous facilities. Over many years, he has developed several specialized engineering computer codes for nuclear industry, including the ACS SASSI software which has significantly advanced the engineering tools for performing accurate 3D, nonlinear, incoherent seismic SSI analysis of nuclear facility structures. The ACS SASSI software includes a suite of unique seismic SSI capabilities for the seismic design of the new advanced nuclear reactor facilities. The ACS SASSI software was independently reviewed and validated for the Seismic SSI analysis under incoherent seismic motions by EPRI (TR# 1015111, Nov 2007), and is currently used by many large nuclear corporations and Agencies in various countries. Additional technical information on the ACS SASSI NQA software is provided at the ACS SASSI webpage at <http://www.ghiocel-tech.com/engineering-tools>

Dr. Ghiocel has provided engineering services on seismic SSI analysis, specialized SSI software and technical support for various large nuclear corporations and different types of NPP facilities, as AP1000, GE-Hitachi ESBWR, Toshiba ABWR, MHI APWR, KEPCO APR1400, HGNE ABWR, AREVA/MHI ATMEA 1, VVER 1400, CAP1400 and HUALONG 1400, CANDU 6, etc. ACS SASSI is also currently used for several new deeply embedded SMR designs in US including in NuScale SMR, GE Hitachi SMR, ARC SMR, HOLTEC SMR, and also Japan JGC SMR and ACP100 SMR.

Dr. Ghiocel over years provided consulting support to NPP structural design companies AECOM, URS, UNITED Energy and Construction, Black & Veatch, Rizzo Associates, S&A, Burns & Roe Enterprise, Bechtel Engineering, SGH, Sargent & Lundy, USA Repository Services, ARES Corporation, SEC/SONGS, SNC-L/CANDU/AECL Canada, KEPCO Korea, CNNC, SNERDI and CNPE China, PBMR Ltd. South Africa, Eletronuclear Brasil, and many others.

Dr. Ghiocel past nuclear experience projects included consulting work on structural analysis, seismic SSI analysis, structural design and probabilistic risk assessment for the NPP structures. He was also involved an outside expert of DOD Defense Nuclear Facility Safety Board (DNFSB) for seismic SSI analysis reviews for the DOE nuclear complex, being more recently deeply involved on the review of the 2010-2013 DOE SASSI V&V project. He was repeatedly Instructor for the SSI analysis and ACS SASSI software training for Government Agencies including USNRC and DOE including Argonne and Brookhaven National Labs.

In his early carrier, Dr. Ghiocel also provided services in other structural consulting areas including probabilistic risk assessment performed for Fort Calhoun NPP Reactor Building; Seismic reevaluation and probabilistic risk assessment for the major site buildings, i.e., Reactor Building, Auxiliary Building, Intake structure and Diesel Generator Building, of Calvert Cliffs NPP; probabilistic risk assessment studies for different structures of the V. C. Summer NPP, Beaver Valley NPP, Arkansas NPP, including also large diameter flat bottom steel tanks; independent reviews and reevaluation of the seismic analysis and design of the Fuel Storage Area Rack Reconfiguration and the Canyon Building at the Savannah River facility; review of seismic soil-structure interaction evaluation including the embedment effects for Pantex, Rocky Flats and Hanford nuclear facilities; seismic soil-structure interaction evaluations of the Dodewaard Reactor Building founded on piles; seismic PRA for Dodewaard NPP, including soil liquefaction effects; determination of fragility curves for the fuel pool, drywell cavity, major equipment for Dodewaard Reactor Building; evaluation of a fuel shipping cask behavior under an internal hydrogen deflagration; soil-structure interaction evaluation for buried radioactive waste storage tanks; structural evaluation and redesign of the Perry NPP Reactor Building internal platform, including the shield doors subjected to severe accident dynamic loads (safety relieve valve, LOCA, pool pressure, etc.) and earthquake motions, and many other nuclear projects.

### Aerospace and Automotive Industry Researcher Experience

Over the previous decade, between 1997 to 2011, he has been the Principal Investigator of several large DOD multiyear research projects for new technology developments for the US Air Force Research Lab at WPAFB, Propulsion directorate, US Army at TARDEC Warren and NAVAIR for new technology developments in the areas on stochastic modeling for aircraft engines and vehicle system and components, including advanced finite element analysis, stochastic design optimization, component life prediction, low- and high-cycle fatigue modeling for vehicles, fans, risk-based cost-maintenance analysis for aircraft and vehicle systems, reliability of aircraft structural joints under corrosion-fatigue damage and aircraft fault diagnostics and prognostics and structural health management.

For a ten years period, between 1998 and 2008, he played a key technical role in the development of the large, multiyear USAF PRDA VII project entitled "HCF Blade Probabilistic Design" in which he had the responsibility of the Technical Integrator of the Industry efforts, including as subcontractors GE Jet Engines, Pratt & Whitney. Allison/Rolls-Royce and Honeywell. On these research projects he has been a close collaborator of GE, United Technologies – Pratt & Whitney, Allison/Rolls-Royce, AFRL Propulsion and Air Vehicle Directorates, NASA Glenn, Boeing – Phantom Works and Lockheed Martin Co. In the above mentioned DOD new technology research projects, he has applied state-of-the-art and innovative non-deterministic techniques including advanced high-performance reliability approaches, stochastic FE M, reliability- based optimization algorithms, implement high-order stochastic field models, stochastic and fuzzy networks, hierarchical stochastic approximation models, combined with advanced stochastic simulation techniques, including Markov Chain Monte Carlo, and hybrid stochastic-neuro-fuzzy system inference for stochastic response approximation, data mining, information fusion and mechanical system health prognostics.

During the DOD research projects, Dr. Ghiocel has developed various research collaboration with different top US universities, such as Carnegie Mellon, Cornell University, University of California at Berkeley, Case Western Reserve University, Virginia Tech, Vanderbilt University, University of Colorado at Boulder, John Hopkins University, Princeton University, Toledo University, University of Iowa, University of Wisconsin and Rochester Institute of Technology, and also the Los Alamos, Sandia Labs and the Southwest Research Institute.

### University Researcher Experience

Dr. Ghiocel received a Ph.D. in Structural Engineering from Case Western Reserve University, Cleveland, Ohio, in 1993, with a dissertation on Nonlinear Stochastic Dynamics and Structural Reliability with application to Nonlinear Systems subjected to Multiple Random Excitations, and two equivalent M. Sc. graduate degrees in *Structural Engineering* (Engineering Diploma) from the Civil Engineering Technical University of Bucharest (former ICB), Romania, in 1980, and then, in *Applied Mathematics* (Post-Graduate Certificate Diploma) from University of Bucharest, Romania, in 1982. Between 1987-1991 he was an Assistant Professor with University of Bucharest., and, after 2001 in US, he received the appointment of an Adjunct Professor with Case Western Reserve University, Cleveland, Ohio. Over years, Dr. Ghiocel has been for university professor and graduate course instructor in Structural Analysis, Structural Dynamics and Seismic Design, Structural Reliability, Strength of Materials and Foundation Engineering. He also advised or co-advised graduate research work and final theses of 8 M.Sc. and 4 Ph.D. students in structural engineering in Civil Engineering Technical University of Bucharest, Case Western Reserve University, Virginia Tech, Vanderbilt University and University of Toledo.

### Professional Society Activity and Scientific Recognition

Dr. Ghiocel has published more than 150 technical papers in various journals and conference proceedings on structural dynamics, seismic SSI, random vibration, probabilistic modeling and structural reliability issues. He is an active member of several prestigious national technical committees, as AIAA-NDA, SAE-RMSL, ASME-IGTI, ASCE-EMD and ASQ-PNC. He has also about four years the Vice Chair of AIAA Non-Deterministic Task Group 1999-2004, Chair of SAE Uncertainty and Reliability Quantification Committee, 2004-2005, and then, Chair of Probabilistic Applications Committee of ASQ starting in 2007.

In 1999, Dr. Ghiocel received the prestigious professional national award from SAE International entitled "Distinguished Probabilistic Methods Service Award". Since 2001, until today Dr. Ghiocel has been appointed as

Adjunct Professor with Case Western Reserve University, Cleveland, Ohio. Also, since 2001 Dr. Ghiocel has been appointed as Fellow of the North American Academy of Sciences and Arts.

He is the Editor-In-Chief for the CRC Press “*Engineering Design Reliability Handbook*” published in 2004 <http://www.crcpress.com/product/isbn/9780849311802> and “*Engineering Design Reliability Applications for the Aerospace, Automotive and Ship Industries*” in 2007 <http://www.crcpress.com/product/isbn/9781420051322>

# Dan Mircea Ghiocel

## RESUME

**STATUS:** US and Romania Citizen, Married

### AREAS OF SPECIALIZATION:

- Structural system analysis & design, including extensive experience in seismic SSI analysis of NPP
- Computational stochastic mechanics, stochastic finite element techniques for nonlinear systems
- Probabilistic risk assessment for components/systems, risk-based design evaluation, risk management
- Stochastic modeling of loads, effects and material behavior, stochastic failure analysis for structures
- Probabilistic damage mechanics and fracture mechanics, including stochastic fatigue and creep life prediction of mechanical/structural components under random loading and temperature conditions
- Life-cycle risk-based cost analysis of mechanical systems, including maintenance activities

### ACADEMIC BACKGROUND:

2001-Present Case Western Reserve University, Cleveland, Ohio, USA – Civil Engineering Department

**Adjunct Professor in Structural Engineering**

Seminars, Joint Research, Scientific Advisor

1991-1993 Case Western Reserve University, Cleveland, Ohio, USA – Civil Engineering Department

**Ph. D. in Structural Engineering** (Engineering Diploma)

Dissertation on Stochastic Dynamics and Structural Reliability of Nonlinear Systems

Application: 700ft Span Cable Dome Subjected to Wind Storm Pressure Fluctuations

1981-1982 University of Bucharest, Romania – Department of Mathematics and Statistics

**M. Sc. Equivalent in Applied Mathematics** (Graduate Diploma Certificate)

Thesis on Computer Simulation of Random Processes using Monte-Carlo Techniques

Application: Simulation of Seismic Random Wave Motion at Ground Surface

1975-1980 Civil Engineering Technical University of Bucharest, Romania

**M. Sc. Equivalent in Structural Civil Engineering** (Engineering Diploma)

Thesis on Seismic and Wind Structural Analyses of the A CN Tower

Application: Structural Analysis and Design of the 435 Meters Height Concrete CN Tower

### PROFESSIONAL EXPERIENCE:

2003-Present **President and Chief of Engineering, Ghiocel Predictive Technologies, Inc., New York**

Co-founder (with Dr. John D. Stevenson, Consulting Engineer) and majority owner of Ghiocel Predictive Technologies, Inc. with the headquarter office in Rochester, New York.

Over the last 20 years, he has been lead consultant for more than 100 nuclear projects on seismic SSI analysis for NPPs, and an active member for development of the ASCE 4-16, ASCE 43-19 standard in US and the CSA289.3-20 standard including new Annex B on “Seismic SSI” in Canada.

He has providing engineering consulting services on seismic SSI analysis and specialized software development for many large nuclear energy corporations, including Westinghouse, GE-Hitachi, NuScale Power, Holteec International, ARC, Toshiba, Mitsubishi Heavy Industries, Hitachi, HGNE, AREVA, AECOM, UNITED, Black & Veatch, Stevenson & Associates, Weidlinger Associates, Paul C. Rizzo, Bechtel Engineering, Sargent and Lundy, SGH, EPRI, ARES Co., Obayashi, Taisei, Shimizu, Takenaka, SNC-L/CANDU, AMEC in Canada, AMEC in UK, KEPCO, KEPRI, KAIST and KAERI in South Korea, CNPE, SNPDR, SNERDI, NSC, GCNPC

CNPDC, CNPRI, GEDI in China, PBMR Ltd. South Africa, Eletronuclear in Brasil, and many others, Government organizations, agencies and national labs, including USNRC, DOD DNFSB and DOE Brookhaven National Lab (BNL) and Argonne National Lab (ANL), Canadian CSNSC, Japan JNRA, Korean KINS, China NSC, Indian AERB, and others.

**2000-2003 Vice President of Advanced Engineering, STI Technologies, New York**

Leading projects on probabilistic modeling for advanced engineering applications. Principal Investigator of five large multiyear research projects for the USAF/AFRL and US Navy/NAVAIR on stochastic modeling for aircraft engines and components, including advanced finite element analysis, component life prediction, high cycle fatigue modeling for fans, turbine risk-based cost-maintenance analysis, corrosion-fatigue for fuselage lap and but joints and engine fault diagnostics and health management. On these research projects he is also collaborating closely with GE Aviation, United Technologies - Pratt & Whitney, Allison/Rolls-Royce, AFRL/PRTC and VASM, NASA Glenn and Marshall RC, Boeing -Phantom Works and Lockheed Martin Co. In these projects he is applying state-of-the-art non-deterministic techniques and is developing innovative stochastic field and hybrid stochastic-neuro-fuzzy approaches for jet engine performance-based and vibration-based diagnostics and prognostics. Collaborations with Cornell, University of California Berkeley, University of Iowa, University of Wisconsin, Michigan University and industry collaborations with GE Aviation, United Technologies - Pratt & Whitney, Allison Rolls-Royce and Honeywell.

**1997-2000 Principal Engineer, STI Technologies New York**

Consulting services and applied research on probabilistic modeling and risk assessment for complex systems, structures and mechanical components under random operational environments. Focus on the nuclear and aircraft structural systems. Developed many innovative stochastic modeling techniques. Extensive work for algorithm development on stochastic load modeling, probabilistic fracture and fatigue algorithms, fragility analysis, non-linear random vibration analysis and stochastic stability, including mistuning and flutter for engine blades. Leading as a Principal Investigator research projects for the DOD agencies, especially USAF, on probabilistic life prediction and risk-based condition assessment including the HCF/LCF/creep interactive life for aircraft structure and engine components. Principal co-investigator or co-investigator of projects for implementation on a real-time probabilistic failure risk evaluation system for component risk-based condition assessment using health-monitoring data and numerical gas-path-analysis models for turbine engines, including probabilistic models for pattern recognition and fault diagnosis for engine performance and vibration.

**1993 - 1997 Senior Engineering Specialist, Stevenson & Associates, Ohio**

Consulting services for structural analysis and design of reinforced concrete, steel and masonry structures, fragility (risk) analyses and risk assessment for nuclear power plant (NPP) structures, stochastic modeling of loads and material behavior, nonlinear finite element analyses, design optimization, dynamic soil-structure interaction. Since 1995, involved in reviews for Defense Nuclear Facility Safety Board (DNFSB) for risk assessment and seismic soil-structure interaction analyses for nuclear defense facilities.

Principal Investigator of a NSF SBIR research project on probabilistic seismic soil-structure interaction and blast effects on underground hazardous facilities.

Project manager/engineer for several consulting projects on structural analysis, design and probabilistic risk assessment for NPP structures, piping systems and equipment. Probabilistic risk assessment performed for Fort Calhoun NPP Reactor Building. Seismic reevaluation and probabilistic risk assessment for the major site buildings, i.e., reactor building, auxiliary building, intake structure and diesel generator building, of the Calvert Cliffs NPP. Probabilistic risk assessment studies for different structures of the V. C. Summer NPP, Beaver Valley NPP, Arkansas NPP, including also large diameter flat bottom steel tanks.

Independent reviews and reevaluation of the seismic analysis and design of the Fuel Storage Area Rack Reconfiguration and Canyon Building of the Savannah River Site Nuclear fragility. Review of seismic soil-structure interaction evaluation including embedment effects for Pantex, Rocky Flats and Hanford fragilities. Seismic soil-structure interaction evaluations for Dodewaard NPP founded on piles. Seismic PRA for Dodewaard NPP, including soil liquefaction. Determination of fragility curves for the fuel pool, drywell cavity, major equipment for Dodewaard Reactor Building. Evaluation of a fuel shipping cask behavior under an internal hydrogen deflagration. Blast evaluation of a multistory building. Seismic/wind risk analysis of the Dodewaard NPP Stack Tower. Soil-structure interaction evaluation for buried radioactive waste storage tanks. Structural

evaluation and redesign of the Perry NPP Reactor Building internal platform, including the shield doors subjected to severe accident dynamic loads (safety relieve valve, LOCA, pool pressure, etc.) and earthquake motions. Software Developer for Stochastic Finite Element Analyses: Developed structural analysis and reliability evaluation computer codes in conjunction with ANSYS. Development of Super SASSI code in 1995 for performing seismic 3D soil-structure interaction analysis.

**1991-1993 Research Assistant, Civil Engineering Department, Case Western Reserve University**

Research on nonlinear stochastic dynamics and structural reliability, projects on behavior of the 680ft wide Florida Suncoast Cable Dome using wind tunnel experiments (NASA Lewis RC) and computational finite element models. Advanced courses in structural dynamics, structural reliability, finite element techniques, structural design, stochastic processes in engineering and random vibrations.

**1987-1991 Assistant Professor in Structural Engineering, Technical University of Bucharest**

Principal Investigator for research/design projects in probabilistic/deterministic dynamics, seismic SSI and system reliability applied to seismic/wind structural design. Analysis of multiple supported structures subjected to correlated random seismic excitations probabilistic safety assessments for Cernavoda CANDU CNE and Transilvania CANDU CNE structures and equipment. Risk analyses for the new design probability-based design codes for NPP, i.e., calibration of load combination coefficients.

Teaching Instructor in Geotechnical and Foundation Engineering. and involved in several research projects and graduation theses on evaluation of seismic SSI and SSSI effects for CANDU structures, Cernavoda and Transilvania sites, including Reactor Building, Turbine Integrated Building and D2O tower, and seismic analysis of the Lebada 2 offshore platform in Black Sea.

**1986 -1987 Manager, Evaluation of QA for Cernavoda NPP Division, Central Laboratory, MC Ind.**

Project Leader/Principal Investigator of several projects in seismic/wind analyses and reliability assessment for CANDU NPP structures, large cooling towers and design code development. Seismic SSI effects for and multilevel subway station (North Station) in Bucharest using FLUSH specialized SSI software. Evaluation of non-conformities by walkdown and provide resolutions to solve these for Cernavoda NPP U1-U5.

In 1987, per order of the Minister of Industrial Constructions (MC Ind) he was appointed to be a expert member of the MC Ind National Commission for safety analyses and nonconformities resolutions for the Cernavoda CANDU NPP Units 3 and 5 (Chaired by MC Ind Director General Cmit).

**1981-1986 Structural Research & Design Engineer, Central Laboratory, Bucharest, MC Ind.**

Principal Investigator for the research project for the CANDU NPP structures under extreme loads, reliability analyses for the calibration of load combination coefficients for new Romania standards for design on the NPP steel and concrete structures, structural design of different types of concrete, steel and masonry structures.

**PROFESSIONAL COMMITTEES AND SOCIETIES:**

2018-**Canadian Standard Association (CSA)**, *Member* of TSA Task Group for CSA289.3 Standard for Seismic Analysis and Design of Nuclear Facility Structures in Canada, for developing of Annex B for “Seismic SSI”

2008- **American Society of Civil Engineers (ASCE)**, *Member* of the DANS Committee for ASCE 4-16 and ASCE 43-19 Standards for Seismic Analysis and Design of Nuclear Facility Structures in USA

2002- **North American Academy of Arts and Sciences**, *Fellow*

1998- **American Institute of Aeronautics and Astronautics (AIAA)**, *Member, Vice Chair* of Nondeterministic Approaches Working Group 1999-2004

1998- **American Institute of Mechanical Engineers (ASME)**, *Member* of International Gas Turbine Institute - Structural Dynamics and Probabilistics Committee,

1995- **American Society of Civil Engineers (ASCE)**, *Member* of Probabilistic Methods Committee of the Engineering Mechanics Division

1993- **Society of Automotive Engineers (SAE International)**, *Member, Chair* of Uncertainty & Reliability Quantification Committee of G11 Division 2001-2005

#### **OUTSIDE EXPERT CONSULTANT:**

1995-2014 **Defense Nuclear Facility Safety Board (DNFSB)**, DOD, Washington D.C.  
Perform review of seismic SSI analyses for DOE complex, collaborate with Dr. J. Stevenson

1995-1997 **Center for Design of Hazardous Facilities for Extreme Events**, Department of Civil Engineering, Case Western Reserve University, Cleveland. Software Developer of Computer Codes on Blast Effects on Structures - Short-Courses

1987-1989 **MC Ind Nuclear Commission for Safety Analyses for Cernavoda CANDU NPP U3 and U5**  
For performing safety reviews for the Reactor Building of Units 3 for the prestressed dome ring beam nonconformance due to large deviations of prestressing cables from the initial design positions.

#### **HONORS AND AWARDS:**

2008 **SAE International Recognition Award**, Society of Automotive Engineers for Substantial contribution to the Technical Program of SAE 2008 World Congress

2007 **SAE International Recognition Award**, Society of Automotive Engineers for Substantial contribution to the Technical Program of SAE 2007 World Congress

2000 **National Aviation & Space Exploration Wall of Honor**, National Air Museum, Smithsonian, Washington D.C.

1999 **Distinguished Probabilistic Methods Service Award** of the Society of Automotive Engineers (SAE) RMSL Division for "*Demonstrated Excellence in Dedication to the Growth and Success of the SAE Probabilistic Methods Committee Through Production of Technical Documents and Ceaseless Assistance to Probabilistic Methods Community*"

1999 **Best Paper of the 1999 Year Award** of International Journal of Condition Monitoring and Diagnostic Engineering Management, for "A Probabilistic Approach to the Diagnosis of Gas Turbine Engine Faults", co-authored with Dr. M. Roemer

1998 **SAE International Recognition Award**, Society of Automotive Engineers (SAE), for leading the Probabilistic Methods session at the National SAE Reliability, Maintainability, Supportability and Logistic Workshop, Dallas.

1997 **SAE International Recognition Award**, Society of Automotive Engineers.(SAE), for leading the Probabilistic Methods session at the National SAE Reliability, Maintainability, Supportability and Logistic Workshop, Dallas.

1996 **SAE International Recognition Award**, Society of Automotive Engineers (SAE), for leading the probabilistic methods session at the National SAE RMSL Workshop, Dallas.

1993 **Craig Miller Memorial Award**, Case Institute of Technology, Case Western Reserve University, Cleveland, Ohio, for outstanding academic achievements.

1980 **Recognition Award** for the Best Student of the Year in Civil Engineering, Romania (w/ Grade 10)



## **EDITOR OF INTERNATIONAL JOURNALS AND BOOKS:**

09/2007 **Taylor & Francis CRC Press**, Editor-In-Chief of “*Engineering Design Reliability Applications in Aerospace, Automotive and Ship Industries*”, September, 2007 ,

12/2004 **Taylor & Francis CRC Press**, Editor-In-Chief of “*Engineering Design Reliability Handbook*” and author or co-Author of four chapters (Chapter 1, 20, 28 and 41);

10/2001 **International Journal for Advanced Manufacturing Systems (IJAMS)**, Editor-In-Chief for the special issue on “*Design and Manufacturing Under Uncertainties*”

## **LIST OF SELECTED PUBLISHED PAPERS ON SEISMIC SSI ANALYSIS OF NPP STRUCTURES (OTHER SUBJECT PAPERS ARE NOT INCLUDED IN THIS LIST):**

Ghiocel, D.M. “Studies on SMR SSI Responses Under Nonvertically Propagating Seismic Waves for Nonuniform Soils With Abrupt Stiffness Variations” *SMiRT26 Conference*, Div. III, Berlin, July 10-15, 2022

Ghiocel, D.M. “Efficient Linear and Nonlinear Seismic SSI Analysis of Deeply Embedded Structures Using Flexible Volume Reduced-Order Modeling” *SMiRT26 Conference*, Div. III, Berlin, July 10-15, 2022

Ghiocel, D.M. and Bulut, Y. “Seismic SSI Analysis of RB Complex on Piles Including Effects of Motion Incoherency and Nonlinear Soil Behavior” *SMiRT26 Conference*, Div. III, Berlin, July 10-15, 2022

Ghiocel, D.M. , Kostarev, V., Kultsep, A. and Nawrotski, P. “Seismic SSI Analysis of A Base-Isolated Storage Structure Founded on Firm Soil”, “ *SMiRT26 Conference*, Div. III, Berlin, July 10-15, 2022

Senechal, H., Linneweber, P. and Kurmann, D. "Probabilistic SSSI Analysis of Reactor and Auxiliary Building without and with Incoherency Effects", *SMiRT26 Conference*, Div. III, Berlin, July 10-15, 2022

Ghiocel, D.M., Nitta, Y., Ikeda, R. and Shono, T. "An Efficient Seismic Nonlinear SSI Approach Based on Best Practices in US and Japan. Part 1:Modeling", *SMiRT26 Conference, Special Session SPECIAL on “Nonlinear Seismic SSI Analysis Based on Best Engineering Practices in US and Japan”* Chairs: Dan M. Ghiocel, GP Technologies, USA, and Yasuo Nitta, SHIMIZU, Berlin, July 10-15, 2022

Ghiocel, D.M., Nitta, Y., Ikeda, R. and Shono, T. "An Efficient Seismic Nonlinear SSI Approach Based on Best Practices in US and Japan. Part 2:Application, *SMiRT26 Conference, Special Session on “Nonlinear Seismic SSI Analysis Based on Best Engineering Practices in US and Japan”* Chairs: Dan M. Ghiocel, GP Technologies, USA, and Yasuo Nitta, SHIMIZU, Berlin, July 10-15, 2022

Nitta, Y., Ikeda, R., Ghiocel, D.M, and Horiguchi, T. "Comparative Study Using Stick and 3DFEM Nonlinear SSI Models Per JEAC 4601-2015 Recommendations" *SMiRT26 Conference, Special Session on “Nonlinear Seismic SSI Analysis Based on Best Engineering Practices in US and Japan”* Chairs: Dan M. Ghiocel, GP Technologies, USA, and Yasuo Nitta, SHIMIZU, Berlin, July 10-15, 2022

Nitta, Y., Ikeda, R., Ghiocel, D.M, and Horiguchi, T. "Seismic SSI Analysis of Reactor Building Complex including Foundation Uplift based on JEAC 4601-2015 Recommendations", *SMiRT26 Conference, Special Session SPECIAL on “Nonlinear Seismic SSI Analysis Based on Best Engineering Practices in US and Japan”* Chairs: Dan M. Ghiocel, GP Technologies, USA, and Yasuo Nitta, SHIMIZU, Berlin, July 10-15, 2022

Ghiocel, D.M. "Sensitivity Studies for Nuclear Island Founded on Piles Including Effects of Seismic Motion Spatial Variation and Local Nonlinear Behavior" *SMiRT25 Conference*, Div. III, Charlotte, NC, USA, August 4-9, 2019

Ghiocel, D.M. "Probabilistic Seismic SSI Analysis Sensitivity Studies for Base-Isolated Nuclear Structures Subjected to Coherent and Incoherent Motions" *SMiRT25 Conference*, Div. III, Charlotte, NC, USA, August 4-9, 2019

Ghiocel, D.M. "Extending SASSI Methodology to Seismic SSI Analysis of NPP Buildings on Soil Deposits with Inclined Layering" *SMiRT25 Conference*, Div. III, Charlotte, NC, USA, August 4-9, 2019

Ghiocel, D.M. "Seismic SSI Effects for Deeply Embedded Nuclear Islands Surrounded by Soft Backfill Soil", *2nd International Symposia for Nuclear Power Plants: Structures, Risk & Decommissioning*, NUPP2018, London, UK, June 11-12, 2018

Ghiocel, D.M. and Saremi, M. "Evaluation of Reinforced Concrete Cracking and Post-Cracking Behavior for Nuclear Buildings Under Design and Beyond Design Earthquake Levels", *2nd International Symposia for Nuclear Power Plants: Structures, Risk & Decommissioning*, NUPP2018, London, UK, June 11-12, 2018

Ghiocel, D.M. and Saremi, M. "ASCE 4-16 Standard-Based Probabilistic Seismic SSI Analysis for Design-Basis and Fragility Analysis" *2nd International Symposia for Nuclear Power Plants: Structures, Risk & Decommissioning*, NUPP2018, London, UK, June 11-12, 2018

Ghiocel, D.M. "New ASCE 4-16 Standard Based Probabilistic SSI Analysis for Seismic Design Basis Analysis and Fragility Calculations", *SMiRT24 Conference*, Division V, Paper 406, Busan, Korea, August 20-25, 2017

Ghiocel, D.M. and Saremi, M., "Accurate Linear and Nonlinear Seismic SSI Analysis Based on ANSYS FE Modeling Using Extended SASSI Methodology", *SMiRT24 Conference*, Division V, Paper 468, Busan, Korea, August 20-25, 2017

Ghiocel, D.M., Jang, Y.S. and Lee, I., "Understanding Seismic Motion Incoherency Modeling and Effects on SSI and SSSI Responses Nuclear Structures ", *SMiRT24 Conference*, Division V, Busan, Korea, August 20-25, 2017

Ghiocel, D.M., Jang, Y.S. and Lee, I., "Fast Nonlinear Seismic SSI Analysis for Low-Rise Concrete Shearwall Buildings for Design-Level (DBE) and Beyond Design-Level (BDBE) ", *SMiRT24 Conference*, Division V, Busan, Korea, August 20-25, 2017

Ghiocel, D.M. and Saremi, M., "Automatic Computation of the Strain-Dependent Concrete Cracking Pattern for Nuclear Structures for Site-Specific Applications", *the SMiRT24 Conference*, Division V, Paper 408, Busan, Korea, August 20-25, 2017

Ghiocel, D.M., "New ASCE 4-Based Probabilistic Nonlinear SSI Analysis for Improving Seismic Fragility Computations" (invited panel presentation), *10th Nuclear Plants Current Issues Symposium: Assuring Safety against Natural Hazards through Innovation & Cost Control*, Charlotte, North Carolina, December 11-14, 2016

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