

Dr. Dan M. Ghiocel

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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 of engineering problems. Dr. Ghiocel has more than 30 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 on practical implementation and use of advanced engineering computational approaches by performing probabilistic risk assessment reviews for large, complex systems such as nuclear facilities, aircraft structural and jet engine systems. Dr. Ghiocel emigrated to United States from Romania in 1991. He is a US Citizen since 2001.

Nuclear Industry Consultant Experience

Over 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 nuclear industry since 1982, in Romania. In 1982, he was the technical lead engineer for an important nuclear project DCD study that investigated the seismic SSI behavior the CANDU 700 Mw NPP for soft soil conditions. He was involved in CANDU related projects until 1990. In 1986, he was appointed the Nuclear Division Manager of the Romanian Construction Industry Central Laboratory with focus on the QA aspects for the NPP Cernavoda Unit 1-5.

After he completed his Ph.D degree in Structural Engineering in 1993 in USA, he joined Stevenson & Associates, Inc. where he worked until 1997. Since 1995, as a close collaborator of Dr. John D. Stevenson, Consulting Engineer, he started to be involved in a number of independent reviews for the Defense Nuclear Facility Safety Board (DNFSB) for seismic SSI analyses of various nuclear defense facilities. During 1996-1997 he was the Principal Investigator of a NSF-funded research project on probabilistic seismic SSI and blast effects for underground hazardous facilities. Over many years, he has developed several specialized engineering computer codes for nuclear industry, including the ACS SASSI code that advances significantly the engineering capabilities for performing accurate 3D, nonlinear, incoherent seismic SSI analysis of nuclear facility structures. The ACS SASSI code includes a suite of unique seismic SSI capabilities for the seismic design of the new advanced nuclear reactor facilities. The ACS SASSI code was validated for incoherent SSI analysis by EPRI (TR# 1013504 Dec 2006 and TR#1015111 Nov 2007) and is currently used by large nuclear corporations, US NRC and IAEA. Dr. Ghiocel is also a contributor to the development of the Bechtel SASSI code for incoherent SSI analysis, and in early 1990s, he has been the developer of the S&A Super SASSI code.

Dr. Ghiocel has provided engineering services on seismic SSI analysis, specialized SSI software and technical support for many large nuclear corporations including Westinghouse Electric Company, GE, Toshiba Co., Mitsubishi Heavy Industry, Hitachi, AECOM/URS Energy and Construction, Black & Veatch, Rizzo Associates, S&A, Burns & Roe Enterprise, Bechtel Engineering, SGH, Sargent & Lundy, USA Repository Services, ARES Corporation, SEC/SONGS, CANDU/AECL Canada, KEPKO Korea, CGN, NSC, SNERDI and

CNPE China, PBMR Ltd. South Africa, Eletronuclear Brasil, other private organizations, US government and international organizations, including EPRI, US NRC and IAEA Vienna. His past nuclear experience projects included consulting work on structural analysis, seismic SSI analysis, structural design and probabilistic risk assessment for NPP structures, piping systems and equipment. Currently, Dr. Ghiocel is involved as a lead consultant for seismic SSI analysis of the Westinghouse AP1000 NI and SMR, GE, NuScale, MHI APWR, Hitachi ABWR, Toshiba ABWR, AREVA/MHI ATMEA 1 and CANDU Candu 6 NPPs.

For the last 20 years he also served as an outside expert of DNFSB for seismic SSI analysis reviews for the DOE nuclear complex, being deeply involved on the review of the 2010-2013 DOE SASSI V&V project.

In the past he also provided consulting 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 last decade, he has been Principal Investigator of several large DOD multiyear research projects for new technology developments for the US OSD, US AFRL WPAFB, US Army TARDEC and US Navy 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 year period, between 1998 and 2008, he played an key technical role in the development of the large, multiyear USAF PRDA project entitled “HCF Blade Probabilistic Design” in which he had the responsibility of the Technical Integrator of the industry efforts including as subcontractors GE Aviation and Pratt & Whitney. On these research projects he has been a close collaborator of GE Aviation, 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, reliability-based optimization algorithms, 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.

University Researcher Experience

As a basic technical background, 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, Romania, in 1980, and in *Applied Mathematics* (Post Graduate Certificate) from University of Bucharest, Romania, in 1982. Between 1987-1991 he was an Assistant Professor with University of Bucharest., and, then, after 2001, he became 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 Recognition

Dr. Ghiocel has published more than 100 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 been for a number of years 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 SAE International "Distinguished Probabilistic Methods Service Award". Since 2001 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 December 2004, and "*Engineering Design Reliability Applications for the Aerospace, Automotive and Ship Industries*" published in September 2007.

Dan Mircea Ghiocel

RESUME

STATUS:

US 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
- Risk-based health management of systems, including stochastic and AI neuro-fuzzy techniques for pattern classification and recognition, fault diagnostics-prognostics, with application to jet engines
- 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

PROFESIONAL EXPERIENCE:

- 2003-Present **President and Chief of Engineering, Ghiocel Predictive Technologies, Rochester NY**
Co-founder (with Dr. John D. Stevenson, Consulting Engineer) and majority owner of Ghiocel Predictive Technologies, Inc. with offices in Rochester NY (main office) and Cleveland OH. Providing engineering consulting services on seismic SSI analysis and specialized SSI software development and support for many large energy corporations, including Westinghouse Electric Company, Toshiba Co., URS, Black & Veatch, Weidlinger Associates, Paul C. Rizzo, Bechtel Engineering, Sargent and Lundy, SGH, EPRI, ARES Co., Obayashi, Taisei, Hitachi-GE,

Shimizu, CANDU, AMEC in Canada, KOPEC KEPRI, KINS and KAERI in South Korea, CNPE, SNERDI, NSC, GEDI in China, PBMR Ltd. South Africa, Eletronuclear in Brasil, and others, government organizations, agencies and national labs, including DNFSB and US NRC, International Atomic Energy Agency (IAEA), and Brookhaven National Lab (BNL) and Argonne National Lab (ANL).

Managing and leading various research and consulting engineering projects for different DOD agencies and nuclear, aerospace and automotive industries. Principal Investigator of several large DOD multiyear research projects for new technology developments for the OSD, AFRL WPAFB, US Army TARDEC and US Navy 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.

Leading DOD projects on probabilistic engineering applications with application to reliability and reliability-based optimization of military vehicles using high-performance distributed computing resources, parallel stochastic finite element for large computational mechanics models including vehicle and aircraft systems, stochastic optimization of vehicle systems using parallel computing, development of probabilistic design systems for engine systems, reliabilitybased maintenance and life-cycle cost analysis for aircraft systems.

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, Boeing and Lockheed-Martin Co. etc.

2000-2003

Vice President of Advanced Engineering, STI Technologies, Rochester NY

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.

1997-2000

Principal Engineer, STI Technologies, Rochester NY

Consulting services and applied research on probabilistic modeling and risk assessment for complex systems, structures and mechanical components under random operational environments. Focus on power, nuclear and aircraft 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, Cleveland OH

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 the S&A Super SASSI code in 1995 for performing seismic 3D soil-structure interaction analysis.

1991-1993

University Research Assistant, Civil Engineering Department, Case Western Reserve University (CWRU), Cleveland OH

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 (part-time between 1982-1987)**
Technical University of Bucharest - Civil Engineering Institute (CEI), Romania
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 Cemavoda NPP and Transylvania NPP structures and equipment. Risk analyses for the new design probability-based design codes for NPP, i.e., calibration of load combination coefficients.
- Teaching Instructor/Structural Analysis, Structural Dynamics and Seismic Design, Structural Reliability, Strength of Materials and Foundation Engineering. Consultant of the National Commission for Safety Analysis of Cernavoda NPP, Ministry of Industrial Constructions, for safety analyses for NPP Cernavoda Units 3 and 5 and for the Institute of Power Studies and Design, Nuclear Power Plant Division, for Seismic and Probabilistic Risk Analyses for NPP Structures, expertises for Cemavoda NPP Unit 1-5 and Transylvania NPP.
- 1986 -1987 **Program Manager, Nuclear Power Plant (NPP) Division**
Central Laboratory of Ministry of Industrial Constructions, Bucharest, Romania
Project Leader/Principal Investigator of several projects in seismic/wind analyses and reliability assessment for NPP structures, large cooling towers and design code development. Seismic SSI effects for and multilevel subway concrete station (North Railway Station) in Bucharest. Use FLUSH and SASSI software. Evaluation of non-conformities by walkdown and development of design solutions to solve them for the Cernavoda NPP Unit 1 - Unit 5.
- 1981-1986 **Structural Research/Design Engineer (PE since 1983)**
Central Laboratory of Ministry of Industrial Constructions, Bucharest, Romania
Principal Investigator of seismic SSI effects on NPP structures under extreme loads, reliability analyses for calibration of load combination coefficients for the new NPP design code for steel and concrete structures in Romania, structural design of different types of concrete, steel and masonry structures.

PROFESSIONAL COMMITTEES AND SOCIETIES:

- 2008- **American Society of Civil Engineers (ASCE)**, *Member* of DANS Committee for ASCE 04 and ASCE 43 for Seismic Analysis and Design of Nuclear Power Plant Structures
- 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 CONSULTANT FOR:

- 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, OH

1987-1990 Software Developer of Computer Codes on Blast Effects on Structures - Short-Course
National Nuclear Safety Commission for Risk Assessment of Nuclear Facilities, Romania
 Department of Industrial Facilities; Perform safety reviews for the Reactor Buildings of
 Units 1 and 3 of Cernavoda NPP.

HONORS AND AWARD:

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 and 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
 Ceasless 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 Student of the Year in Civil Engineering, Romania

EDITOR OF INTERNATIONAL JOURNALS AND BOOKS:

9/2007 **Taylor & Francis CRC Press**, Editor-In-Chief of "*Engineering Design Reliability
 Applications in Aerospace, Automotive and Ship Industries*", September, 2007
"Reliability Analysis of Aircraft Structure Joints Under Corrosion and Fatigue Damage"
 by D.M. Ghiocel and E. Tuegel
 12/2004 **Taylor & Francis CRC Press**, Editor-In-Chief of "*Engineering Design Reliability
 Handbook*" and Author or Co-Author of three chapters (Chapter 20, 28 and 41)
 - "*Simulation Methods for Non-Deterministic Engineering Predictions*" (Chapter 20)
 by D.M. Ghiocel (Chapter 20)
 - "*Non-Deterministic Hybrid Architectures for Health Management of Turbomachinery*"
 by J. Altmann and D.M. Ghiocel (Chapter 28)
 - "*Reliability Analysis of Aircraft Structure Joints Under Corrosion and Fatigue Damage*"
 by D.M. Ghiocel and E. Tuegel (Chapter 28)
 10/2001 **International Journal for Advanced Manufacturing Systems (IJAMS)**, Editor-In-Chief for
 the special issue on "*Design and Manufacturing Under Uncertainties*"

**SELECTED PAPERS ON SEISMIC SSI ANALYSIS OF NUCLEAR OR SPECIAL STRUCTURES
(OTHER SUBJECT PAPERS NOT INCLUDED):**

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

Ghiocel, D.M., "Fast Nonlinear Seismic SSI Analysis for Low-Rise Concrete Shearwall Buildings for Design-Basis and Beyond Design Application", *2-Day U.S. Department of Energy Natural Phenomena Hazards Meeting*, Germantown, MD, USA, October 18-19, 2016, Session on "Soil-Structure Interaction" (presentation)

Ghiocel, D.M., "Critical Modeling and Implementation Aspects for Seismic Incoherent SSI Analysis of Nuclear Structures with Surface and Embedded Foundations for Rock and Soil Sites", *2-Day U.S. Department of Energy Natural Phenomena Hazards Meeting*, Germantown, MD, USA, October 18-19, 2016, Session on "Soil-Structure Interaction" (presentation)

Ghiocel, D.M., "Probabilistic SSI Analysis Per ASCE 4-16 Standard; A Significant Improvement for Seismic Design Basis Analysis and Fragility Calculations", *2-Day U.S. Department of Energy Natural Phenomena Hazards Meeting*, Germantown, MD, USA, October 18-19, 2016, Session on "Soil-Structure Interaction" (presentation)

Ghiocel, D.M., "ACS SASSI Application to Seismic Soil-Structure Interaction (SSI) Analysis of Highway Bridge Structure", *the 1st day workshop presentation of the 3rd Annual ACS SASSI Workshop in Tokyo, Japan*, May 12-13, 2016 (presentation).

Ghiocel, D.M., "Sensitivity Studies for Evaluating SSI Effects for Seismically Base-Isolated NPP Structures", *the ASCE Dynamic Analysis Nuclear Structure (DANS) working group ASCE 43 standard meeting in San Diego*, November 6, 2015, PART 1:Deterministic SSI Analysis and PART 2:Probabilistic SSI Analysis (presentation)

Ghiocel, D.M., "SASSI Flexible Volume Substructuring Methods for Deeply Embedded Structures; Selection of Excavated Soil Interaction Nodes and Element Meshing", *the SMiRT23 Conference for NPP Structures*, August 2015

Ghiocel, D.M., "Fast Nonlinear Seismic SSI Analysis Using A Hybrid Time-Complex Frequency Approach for Low-Rise Nuclear Concrete Shearwall Buildings", *the SMiRT23 Conference for NPP Structures*, August 2015

Ghiocel, D.M., "Probabilistic-Deterministic SSI Studies for Surface and Embedded Nuclear Structures on Soil and Rock Sites", *the SMiRT23 Conference for NPP Structures*, August 2015

Ghiocel, D.M., "Seismic Motion Incoherency Effects on Soil-Structure Interaction (SSI) and Structure-Soil-Structure Interaction (SSSI) of Nuclear Structures for Different Soil Site Conditions", *the SMiRT23 Conference for NPP Structures*, August 2015

Ghiocel, D.M., "Random Vibration Theory (RVT) Based SASSI Analysis for Nuclear Structures Founded on Soil and Rock Sites", *the SMiRT23 Conference, for NPP Structures*, August 2015

Ghiocel, D.M., "Engineering Advances Implemented in ACS SASSI Version 3.0 for Seismic SSI Analysis of Nuclear Structures"(presentation), *the 2nd Annual ACS SASSI Workshop in Tokyo, Japan*, April 14, 2015

Ghiocel, D.M., "Effects of Seismic Motion Incoherency on SSI and SSSI Responses of Nuclear Structures for Different Soil Site Conditions", *2-Day U.S. Department of Energy Natural Phenomena Hazards Meeting*, Germantown, MD, USA, October 21-22, 2014, Session on "Soil-Structure Interaction" (presentation)

Ghiocel, D.M., "Comparative Probabilistic-Deterministic and RVT-based SASSI Analyses of Nuclear Structures for Soil and Rock Sites", *2-Day U.S. Department of Energy Natural Phenomena Hazards Meeting*, Germantown, MD, USA, October 21-22, 2014, Session on "Soil-Structure Interaction" (presentation)

Ghiocel, D.M., "SASSI Methodology-Based Sensitivity Studies for Deeply Embedded Structures Such As Small Modular Reactors (SMRs)", *2-Day U.S. Department of Energy Natural Phenomena Hazards Meeting*, Germantown, MD, USA, October 21-22, 2014, Session on "Soil-Structure Interaction" (presentation)

Ghiocel, D.M., "Nonlinear Seismic Soil-Structure Interaction (SSI) Analysis Using An Efficient Complex Frequency Approach", *the 2nd European Conference on Earthquake Engineering and Seismology, for Civil Engineering Structures*, Istanbul, Turkey, August 2014

Ghiocel, D.M., "Seismic Structure-Soil-Structure Interaction (SSSI) Effects for Dense Urban Areas", *the 2nd European Conference on Earthquake Engineering and Seismology for Civil Engineering Structures*, Istanbul, Turkey, August 2014 (poster paper)

Ghiocel, D.M., "Incoherent Soil-Structure Interaction (SSI) Effects for A 242M Long Concrete Founded on Deep Piles", *the 2nd European Conference on Earthquake Engineering and Seismology for Civil Engineering Structures*, Istanbul, Turkey, August 2014 (poster paper)

Ghiocel, D.M., "Recent Advances in Seismic Soil-Structure Interaction (SSI) Analysis of Special Structures Using ACS SASSI", *ACS SASSI Workshop in Shanghai, China*, April 3, 2014. (presentation)

Ghiocel, D.M., "Recent Advances Implemented in ACS SASSI Software for Linear and Nonlinear Seismic Soil-Structure Interaction (SSI) Analysis", *The 1st Annual ACS SASSI Workshop in Tokyo, Japan*, March 24-25, 2014 (presentation),

Ghiocel, D.M., "Comparative Studies on Seismic Incoherent SSI Analysis Methodologies", *SMiRT22 Proceedings*, Division V, San Francisco, California, August 18-23, 2013

Ghiocel, D.M. and Stoyanov, G., "Comparative Probabilistic-Deterministic Investigations for Evaluation of Seismic Soil-Structure Interaction Response", *SMiRT22 Proceedings*, Division V, San Francisco, California, August 18-23, 2013

Ghiocel, D.M., Yue, D., Fuyama, H., Kitani, T. and McKenna, M., "Validation of Modified Subtraction Method for Seismic SSI Analysis of Large-Size Embedded Nuclear Islands", *SMiRT22 Proceedings*, Division V, San Francisco, California, August 18-23, 2013

Ghiocel, D.M. and Todorovski, L., "Fast Nonlinear Seismic Soil-Structure Interaction (SSI) Analysis of Nuclear Shearwall Concrete Structures Subjected to Review Level Earthquake", *SMiRT22 Proceedings*, Division V, San Francisco, California, August 18-23, 2013

Yue, D., Ghiocel, D.M., Fuyama, H., Ogata, T. and Stark, G., "Structure-Soil-Structure Interaction Effects for Two Heavy NPP Buildings With Large-Size Embedded Foundations", *SMiRT22 Proceedings*, Division V, San Francisco, California, August 18-23, 2013

Ghiocel, D.M. and Grigoriu, M., "Efficient Probabilistic Seismic Soil-Structure Interaction (SSI) Analysis for Nuclear Structures Using Reduced-Order Modeling in Probabilistic Space", *SMiRT22 Proceedings*, Division V, San Francisco, California, August 18-23, 2013

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