



## **Professor Dr.-Eng. Ioannis K. CHATJIGEORGIU, PhD**

**School of Naval Architecture and Marine Engineering**

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### **DATE OF BIRTH**

March 22, 1966

### **EDUCATION**

National Technical University of Athens

School of Naval Architecture and Marine Engineering

DOCTOR OF PHILOSOPHY

Offshore Structures Technology

Awarded July 15, 1997

National Technical University of Athens

School of Naval Architecture and Marine Engineering

DIPLOMA IN NAVAL ARCHITECTURE AND MARINE ENGINEERING

Awarded September 23, 1990

### **APPOINTMENTS**

September 2016 -: National Technical University of Athens

Professor, School of Naval Architecture and Marine Engineering

March 2010 – August 2016: National Technical University of Athens

Associate Professor, School of Naval Architecture and Marine Engineering

April 2014 – April 2016: University of East Anglia, Norwich, UK

Professor (MTH), Marie Curie Research Fellow, Intra-European Fellowships for Outstanding Researchers under the project:

SAFEMILLS “Increasing safety of offshore wind turbines operation: Study of the violent wave loads”

October 2011 – November 2011: Ecole Centrale Marseille, France  
Visiting Professor (Maître de Conférences)

March 2005 – March 2010: National Technical University of Athens  
Assistant Professor, School of Naval Architecture and Marine  
Engineering

May 2008 – June 2008: Ecole Centrale Marseille, France  
Visiting Professor (Maître de Conférences)

October 2006 – November 2006: NTNU, Trondheim, Norway  
Visiting Professor, Centre of Ships and Ocean Structures

February 2001 – March 2005: National Technical University of Athens  
Lecturer, School of Naval Architecture and Marine Engineering

January 1997 – February 2001: ELTRAK S.A. (Caterpillar Inc.)  
Service Manager, Marine and Industrial Division

March 1999 – August 1999: National Technical University of Athens  
Teaching Associate, School of Naval Architecture and Marine  
Engineering

January 1991 – December 1997: National Technical University of Athens  
Research Engineer, School of Naval Architecture and Marine  
Engineering

## **AWARDS**

Marie Curie Intra-European Fellowship for Outstanding Researchers, April 2014 –  
April 2016.

## **RESEARCH INTERESTS**

- Linear and nonlinear hydrodynamics of floating structures
- Hydrodynamic violet slamming
- Hydroelasticity
- Wave-current and wave resistance problems
- Environmental loading and response of floating structures
- Cable and slender structure dynamics

- Dynamics of pipes with axial flow
- Numerical methods in line dynamics
- Design and analysis of mooring systems
- Hydromechanic analysis of moored floating structures

## TEACHING

National Technical University of Athens, School of Naval Architecture and Marine Engineering, Undergraduate program

*Dynamics of Marine Structures (compulsory 6th semester)*

*Mooring Systems for Floating Structures (elective 9th semester)*

*Health and Safety in Shipbuilding (elective 8th semester)*

National Technical University of Athens, School of Naval Architecture and Marine Engineering, Postgraduate program

*Environmental conditions and loading on offshore structures (1st semester)*

*Hydromechanic analysis and design of moored floating structures (2nd semester)*

*Dynamic behaviour of floating structures (2nd semester)*

## PhD SUPERVISION

**Stefanos A. Katifeoglou**, *Hydroelastic Behaviour of Structural Elements under Extreme Loading Conditions, Focusing on Marine Applications*, School of Naval Architecture and marine Engineering, National Technical University of Athens; awarded, January 2016.

## PROFESSIONAL AND ACADEMIC ACTIVITIES

MEMBER IN SCIENTIFIC AND PROFESSIONAL SOCIETIES

The Hellenic Technical Chamber

The Hellenic Society of Naval Architects

The Hellenic Institution of Marine Technology

The Royal Institution of Naval Architects

The American Society of Mechanical Engineers (ASME)

#### MEMBER IN EDITORIAL BOARDS

Associate Editor Journal of Offshore Mechanics and Arctic Engineering (JOMAE – ASME)

Editorial board of Applied Ocean Research (Elsevier) 2012-

Guest editor (Associate) of the special issue Mathematical Modeling of Marine Structures, Journal of Applied Mathematics, Hindawi Publishing Corporation, 2011-2012

#### ORGANIZATION OF CONFERENCES

Co-organizer of the 26th International Workshop of Water Waves and Floating Bodies, held in Athens, Greece, 17-20 April 2011

Member of the local organizing committee for the 24th International Conference on Offshore Mechanics and Arctic Engineering (OMAE 2005), ASME, Halkidiki, Greece, 12-17 June 2005

#### REVIEWER INVITATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS

Acta Mechanica (Springer); Advances in Mechanical Engineering (Hindawi); Applied Mathematics and Computation (Elsevier); Applied Mathematical Modelling (Elsevier); Applied Ocean Research (Elsevier); Archives of Acoustics (Polish Academy of Sciences) ; Brodogradnja (Shipbuilding) (University of Zagreb); China Ocean Engineering (Springer); Computation (MDPI AG publishers); Computers & Fluids (Elsevier); Computer Physics Communications; Computers and Structures (Elsevier); Differential Equations and Dynamical Systems (Springer); Engineering (Chinese Academy of Engineering - Elsevier); Engineering Analysis with Boundary Elements (Elsevier); Engineering Structures (Elsevier); Environmental Processes (Springer); European Journal of Mechanics A/Solids (Elsevier); European Journal of Mechanics B/Fluids (Elsevier); Finite Element Analysis and Design (Elsevier); International Journal of Computational Methods (Worldscientific); International Journal of Heat and Mass Transfer (Elsevier); International Journal of Mechanical Sciences (Elsevier); International Journal of Naval Architecture and Ocean Engineering

(Elsevier); International Journal of Nonlinear Mechanics (Elsevier); International Journal of Solids and Structures (Elsevier); Journal of Computational Science (Elsevier); Journal of Engineering for the Maritime Environment (SAGE journals); Journal of Engineering Mathematics (Springer); Journal of Fluid Mechanics (Cambridge University Press); Journal of Fluids and Structures (Elsevier); Journal of Hydraulic Research (Taylor and Francis); Journal ISA Transactions (Elsevier); Journal of Marine Engineering and Technology (Taylor & Francis); Journal of Marine Science and Application (Springer); Journal of Marine Science and Technology (Springer); Journal of Marine Science and Engineering (MDPI AG Publishers); Journal of Mechanical Engineering (Strojniški vestnik); Journal of Mechanical Science and Technology (Springer); Journal of Natural Gas Science & Engineering (Elsevier); Journal of Offshore Mechanics and Arctic Engineering (ASME); Journal of Pipeline Systems (ASCE); Journal of Ship Research (SNAME); Journal of Sound and Vibration (Elsevier); Journal of Vibration and Acoustics (ASME); Journal of Vibration and Control (SAGE journals); Journal of Waterway, Port, Coastal and Ocean Engineering (ASCE); Mathematical Problems in Engineering (Hindawi); Marine Structures (Elsevier); Meccanica (Springer); Nonlinear Dynamics (Springer); Ocean Engineering (Elsevier); Physics of Fluids (AIP); Physical Review Fluids (APS Physics); SN Applied Sciences (Springer); Shock and Vibration (IOS press); Ships and Offshore Structures (Taylor & Francis); Solid Dynamics and Earthquake Engineering (Elsevier); The Scientific World Journal (Hindawi); Wave motion (Elsevier)

#### REVIEWER IN CONFERENCES

16th International Conference of the Maritime Association of the Mediterranean (IMAM 2015), 21-24 Sep 2015, Pula, Croatia.

7th International Conference on Hydroelasticity in Marine Technology, 16-19 September, Split, Croatia.

ASME 2013 International Mechanical Engineering Congress & Exposition, IMECE 2013, 15-21 November, San Diego, CA, USA.

23rd International Conference on Offshore and Polar Engineering, ISOPE 2013, 30 June- 5 July, Anchorage, Alaska, USA.

32nd International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2013, 9-14 June 2013, Nantes, France.

31st International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2012, 1-6 July 2012, Rio De Janeiro, Brazil.

21st International Conference on Offshore and Polar Engineering, ISOPE 2011, 19-24 June 2011, Maui, Hawaii, USA.

30th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2011, 19-24 June 2011, Rotterdam, The Netherlands.

20th International Conference on Offshore and Polar Engineering, ISOPE 2010, 20-26 June 2010, Beijing, China.

28th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2009, 31 May-5 June, 2009, Honolulu, Hawaii, USA.

27th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2008, 15-20 June 2008, Estoril, Portugal.

26th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2007, 10-15 June 2007, San Diego, CA, USA.

25th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2006, 4-9 June 2006, Hamburg, Germany.

11th International Conference of the Maritime Association of the Mediterranean, IMAM 2002, 13-17 May 2002, Crete, Greece.

#### SESSION ORGANIZER IN INTERNATIONAL CONFERENCES

Special session "Subsea Pipelines and Risers", The 26th International Ocean and Polar Engineering Conference, June 26-July 2, 2016, Rhodes (Rodos), Greece.

Session 1-2-3 "Dynamic Positioning Systems I", 34th Offshore Mechanics and Arctic Engineering Conference, ASME, OMAE 2015, 31 May – 5 June 2015, St John's, Canada.

Session organizer of session 1-8 "Risings and Pipelines", 33rd Offshore Mechanics and Arctic Engineering Conference, ASME, OMAE 2014, 8-13 June 2014, San Francisco, CA, USA.

Session organizer of session 1-16 "Risings I: Computations", 32nd Offshore Mechanics and Arctic Engineering Conference, ASME, OMAE 2013, 9-14 June 2013, Nantes, France.

Session organizer of session 1-12 "Mooring and Anchoring: Computations – Session II", 31st Offshore Mechanics and Arctic Engineering Conference, ASME, OMAE 2012, 1-6 July 2012, Rio De Janeiro, Brazil.

Session organizer of session 1-6 "Mooring and Anchoring", 30th Offshore Mechanics and Arctic Engineering Conference, ASME, OMAE 2011, 19-24 June 2011, Rotterdam, The Netherlands.

Session organizer of session 1-16 "Anchoring Systems", 29th Offshore Mechanics and Arctic Engineering Conference, ASME, OMAE 2010, 6-11 June 2012, Shanghai China.

Session organizer of session 1-20 "Hydrodynamics II", 28th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2009, 31 May - 5 June 2009, Honolulu, Hawaii, USA.

Session organizer of session OFT-17 "Hydrodynamics III", 27th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2008, 15-20 June 2008, Estoril, Portugal.

Session organizer of session 1-19 "Hydrodynamics II", 26th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2007, 10-15 June 2007, San Diego, CA, USA.

Session organizer of session 1-27 "Hydrodynamics", 25th International Conference on Offshore Mechanics and Arctic Engineering, ASME, OMAE 2006, 4-9 June 2006, Hamburg, Germany.

#### MEMBER IN EXPERTS AND SPECIALISTS COMMITTEES

Committee I.2 – Loads. 20th International Ship and Offshore Structures Congress, 2015-2018, Delft, The Netherlands, Liege, Belgium.

Specialists Committee V.8 – Risers and Pipelines. 19th International Ship and Offshore Structures Congress, 2012-2015, 7-10 September 2015, Lisbon, Portugal.

Committee I.1 – Environment. 18th International Ship and Offshore Structures Congress, 2009-2012, 10-13 September 2012, Rostock, Germany.

Specialists Committee V.2 – Floating Production Systems. 17th International Ship and Offshore Structures Congress, 2006-2009, 16-21 August 2009, Seoul, South Korea.

Specialists Committee V.2 – Floating Production Systems. 16th International Ship and Offshore Structures Congress, 2003-2006, 20-25 August 2006, Southampton, UK.

#### INVITED SPEAKER

- ✓ Special workshop “Experimental Flow Analysis Techniques Versus CFD” organized by the French company SIREHNA during the meeting of the FLOATTECH Thematic Network, Nantes, France, April 8, 2005.
- ✓ Centre of excellence CeSOS, Department of Marine Technology, NTNU University. The title of the lecture was “A semi-analytical mathematical formulation as a tool for the dynamic analysis of catenary shaped slender structures”, Trondheim, Norway, October 12, 2006.
- ✓ Centre of excellence CeSOS, Department of Marine Technology, NTNU University. The title of the lecture was “Comparison of results from various numerical methods for calculation of dynamic response of catenary risers”, Trondheim, Norway, November 17, 2006.
- ✓ Institut de Recherche sur the Phénomènes Hors Équilibre, École Centrale Marseille. The title of the lecture was “Tracking parametric type instabilities associated with the dynamic behavior of catenary type slender structures”, Marseille, France, June 3, 2008.
- ✓ Bureau Veritas, Paris, France. The title of the lecture was “Review of the methods, technical issues and available software for analyzing the dynamics of slender structures for marine applications”, Bureau Veritas Headquarters, Paris, France, August 28, 2013.
- ✓ Marine Knowledge Exchange Network, UK. Future technology for marine monitoring and governance. The title of the lecture was “Groundbreaking Research: Breaking waves and impacts on marine architecture”, Hethel Engineering Centre, Norfolk, UK, October 23, 2014.
- ✓ Institut de Recherche sur the Phénomènes Hors Équilibre, École Centrale Marseille, France. The title of the lecture was “3D steep wave impact on a vertical cylinder”, Marseille, France, January 20, 2015.
- ✓ University of Bologna, Winter Course on Offshore and Marine Systems Engineering. The tile of the lecture was “Analysis and design of floating structures”, Ravenna, Italy, March 10, 2015.
- ✓ Tel Aviv University, School of Mechanical Engineering Seminar. The title of the lecture was “Three-dimensional steep wave impact on a vertical cylinder”, Tel Aviv, Israel, June 8, 2015.
- ✓ University of East Anglia, School of Mathematics. The title of the lecture was “Ellipsoidal harmonics and their applications”, Norwich, UK, October 19, 2015.



- ✓ University of Southampton, Faculty of Engineering and Environment. The title of the seminar was “Hydrodynamic slamming: General aspects and solution methods”, Southampton, UK, February 11, 2016.
- ✓ University of Thessaly, Department of Civil Engineering. The title of the seminar was “Wave trapping in arrays of elliptical cylinders”, Volos, Greece, May 3, 2017.
- ✓ CNR-INSEAN Istituto Nazionale per Studi ed Esperienze di Architettura Navale Vasca Navale. The title of the lecture was “Aspects of hydrodynamic interaction in a hybrid jacket for wind-wave energy harvesting”, Rome, Italy, January 23, 2018.

## **List of publications**

### **1 Thesis**

- 1.1 Chatjigeorgiou, I.K. (1997), Nonlinear dynamic analysis of high- and low tension wire and synthetic mooring cables, PhD Thesis, National Technical University of Athens, School of Naval Architecture and Marine Engineering, June 1997 (in Greek).
- 1.2 Chatjigeorgiou, I.K. (1990) Dynamic behaviour of a moored axisymmetric body exposed to the action of waves and steady current, Diploma Thesis, National Technical University of Athens, School of Naval Architecture and Marine Engineering, June 1990 (in Greek).

### **2 Journal publications**

- 2.1 Tsaousis, T.D., Papadopoulos, P.K., Chatjigeorgiou, I.K. (2020) A semi-analytical solution for the three-dimensional Wagner steep wave impact on a vertical circular cylinder, *Applied Mathematical Modelling*, 77, 902-921.
- 2.2 Loukogeorgaki, E., Chatjigeorgiou, I.K. (2019) Hydrodynamic performance of an array of truncated cylinders in front of a vertical wall, *Ocean Engineering*, 189, 106407.
- 2.3 Chatjigeorgiou, I.K. (2019) An analytical approach for the three-dimensional water entry problem of solids creating elliptical contact regions, *Journal of Fluids and Structures*, 91, 102703.

- 2.4 Chatjigeorgiou, I.K. (2019) Semi-analytical solution for the water wave diffraction by arrays of truncated circular cylinders in front of a vertical wall, *Applied Ocean Research*, 88, 147-159.
- 2.5 Chatjigeorgiou, I.K., Chatziioannou, K., Mazarakos, T. (2019) Near trapped modes in a long array of truncated circular cylinders, *Journal of Waterway, Port, Coastal and Ocean Engineering*, 145(1): 04018035
- 2.6 Chatjigeorgiou, I.K. (2018) Water wave trapping in a long array of bottomless circular cylinders, *Wave Motion*, 83, 25-48.
- 2.7 Miloh, T., Chatjigeorgiou, I.K. (2018) Fundamental problems in hydrodynamics of ellipsoidal forms, *Journal of Hydrodynamics*, 30(3), 774-786.
- 2.8 Chatjigeorgiou, I.K., Katsardi, V. (2018) Hydrodynamics and near trapping effects in arrays of multiple elliptical cylinders in waves, *Ocean Engineering*, 157C, 121-139.
- 2.9 Chatjigeorgiou, I.K., Korobkin, A.A., Cooker, M.J. (2017) Three-dimensional steep wave impact on a vertical plate with an open rectangular section, *International Journal of Mechanical Sciences*, 133C, 260-272.
- 2.10 Chatjigeorgiou, I.K., Miloh, T. (2017) Hydrodynamics of non-axisymmetric oblate spheroids below a free surface, *Journal of Ocean Engineering and Marine Energy*, 3, 125-138.
- 2.11 Chatjigeorgiou, I.K. (2017) Hydroelastic response of marine risers subjected to internal slug-flow, *Applied Ocean Research*, 62, 1-17.
- 2.12 Chatjigeorgiou, I.K., Cooker, M.J., Korobkin, A.A. (2016) Three-dimensional water impact at normal incidence to a blunt structure, *Proc Royal Society A* 472, 20150849.
- 2.13 Chatjigeorgiou, I.K. (2016) A note on mixed boundary value problems involving triple trigonometrical series, *Applied Mathematics Letters*, 57, 25-31.
- 2.14 Chatjigeorgiou, I.K., Korobkin, A.A., Cooker, M.J. (2016) Three-dimensional steep wave impact on a vertical cylinder, *Journal of Hydrodynamics*, 28, 523-533.
- 2.15 Doschoris, M., Dassios, G., Vafeas, P., Kariotou, F., Chatjigeorgiou, I.K. (2015) Revisiting a numerical implementation of the EEG problem in ellipsoidal geometry, *Pioneer Journal of Advances in Applied Mathematics*, 14(1-2), 35-51.
- 2.16 Katifeoglou, S., Chatjigeorgiou, I.K. (2015) A shell-dynamics model for pipelines of large suspended length, *Ocean Systems Engineering*, 5, 301-318.

- 2.17 Chatjigeorgiou, I.K., Dassios, G., Miloh, T. (2015) Hydrodynamics of orthotropic shapes utilizing ellipsoidal harmonics, *Pioneer Journal of Advances in Applied Mathematics*, 13(1-2), 31-69.
- 2.18 Katifeoglou, S., Chatjigeorgiou, I.K. (2015) Dynamics of shell-like tubular segments at the sagbend region of a Steel Catenary Riser, *Ships and Offshore Structures*, DOI: 10.1080/17445302.2015.1074644
- 2.19 Dassios, G., Chatjigeorgiou, I.K. (2015) Computation of higher order ellipsoidal harmonics with an application in electroencephalography, *Quarterly Journal of Mechanics and Applied Mathematics*, 68(2), 145-172.
- 2.20 Chatjigeorgiou, I.K., Miloh, T. (2015) Hydrodynamic wave resistance and diffraction problems of submerged prolate spheroids based on a Green's function image singularities method, *European Journal of Mechanics/B Fluids*, 49A, 184-196.
- 2.21 Chatjigeorgiou, I.K., Miloh, T. (2015) Radiation and oblique diffraction by submerged prolate spheroids in water of finite depth, *Journal of Ocean Engineering and Marine Energy*, 1, 3-18.
- 2.22 Chatjigeorgiou, I.K. (2015) Second-order nonlinear dynamics of catenary pipelines subjected to bi-chromatic excitations, *Applied Mathematical Modelling*, 39, 2363-2384.
- 2.23 Perrusson, G., Vafeas, P., Chatjigeorgiou, I.K., Lesselier, D. (2015) Low-frequency on-site identification of a highly-conductive body buried in Earth from a model ellipsoid, *IMA Journal of Applied Mathematics*, 80, 963-980.
- 2.24 Chatjigeorgiou, I.K., Miloh, T. (2014) Free-surface hydrodynamics of a submerged prolate spheroid in finite water depth based on the method of multipole expansions, *Quarterly Journal of Mechanics and Applied Mathematics*, 67(4), 525-552.
- 2.25 Chatjigeorgiou, I.K., Miloh, T. (2014) Hydrodynamics of submerged prolate spheroids advancing under waves: Wave diffraction with forward speed, *Journal of Fluids and Structures*, 49, 202-222.
- 2.26 Bitner-Gregersen, E.M., Bhattacharya, S.K., Chatjigeorgiou, I.K., Eams, I., Ellermann, K., Ewans, K., Hermanski, G., Johnson, M.C., Ma, N., Maisondieu, C., Nilva, A., Rychlik, I., Waseda, T. (2014) Recent developments of ocean environmental description with focus on uncertainties, *Ocean Engineering*, 86, 26-46.
- 2.27 Molin, B., Kimmoun, O., Remy, F., Chatjigeorgiou, I.K. (2014) Third-order effects in wave-body interaction, *European Journal of Mechanics – B/Fluids*, 47, 132-144.

- 2.28 Chatjigeorgiou, I.K. (2013) Second-order nonlinear dynamics of catenary pipelines: A frequency domain approach, *Computers and Structures*, 123, 1-14.
- 2.29 Chatjigeorgiou, I.K., Miloh, T. (2013) Wave scattering of spheroidal bodies bellow a free surface, *Journal of Ship Research*, 57, 141-154.
- 2.30 Chatjigeorgiou, I.K., Molin, B. (2013) Third-order interactions, wave un-up and hydrodynamic loading on a vertical plate in an infinite wave field, *Applied Ocean Research*, 41, 57-64.
- 2.31 Chatjigeorgiou, I.K. (2013) The hydrodynamics of arrays of truncated elliptical cylinders, *European Journal of Mechanics – B/Fluids*, 37, 153-164.
- 2.32 Chatjigeorgiou, I.K. (2013) Numerical simulation of the chaotic lateral vibrations of long rotating beams, *Applied Mathematics and Computation*, 219, 5592-5612.
- 2.33 Chatjigeorgiou, I.K. (2013) The analytic solution for hydrodynamic diffraction by submerged prolate spheroids in infinite water depth, *Journal of Engineering Mathematics* 81, 47-65.
- 2.34 Chatjigeorgiou, I.K. (2013) Parametric instabilities in the out-of-plane dynamics of catenary-shaped slender structures transporting fluids, *Proceedings of the IMechE, Part M. Journal of Engineering for the Maritime Environment*, 227, 326-342.
- 2.35 Kazangas, D.C., Xiros, N.I., Chatjigeorgiou, I.K. (2013) Reduced-order, nonlinear approximation of catenary riser dynamics using frequency domain identification, *Proceedings of the IMechE, Part M. Journal of Engineering for the Maritime Environment*, 227, 343-356.
- 2.36 Larsen, C.M., Troesch, A., Pesce, C.P., Chatjigeorgiou, I.K. (2012) Mathematical modeling of marine structures, *Journal of Applied Mathematics* (editorial), art. no. 127935.
- 2.37 Katifeoglou, S.A., Chatjigeorgiou, I.K. (2012) Dynamic interaction of catenary risers with the seafloor, *Applied Ocean Research*, 38, 1-15.
- 2.38 Chatjigeorgiou, I.K. (2012) Hydrodynamic exciting forces on a submerged oblate spheroid in regular waves, *Computers and Fluids*, 57, 151-162.
- 2.39 Chatjigeorgiou, I.K., Mavrakos, S.A. (2012) The analytic form of Green's function in elliptic coordinates, *Journal of Engineering Mathematics*, 72, 87-105.
- 2.40 Chatjigeorgiou, I.K. (2011) Three dimensional wave scattering by arrays of elliptical and circular cylinders, *Ocean Engineering*, 38, 1480-1494.
- 2.41 Chatjigeorgiou, I.K. (2010) On the effect of internal flow on vibrating catenary risers in three dimensions, *Engineering Structures* 32, 3313-3329.

- 2.42 Chatjigeorgiou, I.K. (2010) Three dimensional nonlinear dynamics of submerged, extensible catenary pipes conveying fluid and subjected to end-imposed excitations, *International Journal of Non-Linear Mechanics*, 45, 667-680.
- 2.43 Chatjigeorgiou, I.K., Mavrakos, S.A. (2010) An analytical approach for the solution of the hydrodynamic diffraction by arrays of elliptical cylinders, *Applied Ocean Research*, 32, 242-251.
- 2.44 Chatjigeorgiou, I.K. (2010) Linear out-of-plane dynamics of catenary risers, *Proceedings of the IMechE, Part M. Journal of Engineering for the Maritime Environment*, 224, 13-27.
- 2.45 Mavrakos, S.A., Chatjigeorgiou, I.K. (2009), Second-order hydrodynamic effects on an arrangement of two concentric truncated vertical cylinders, *Marine Structures*, 22, 545-575.
- 2.46 Chatjigeorgiou, I.K. (2008), A finite differences formulation for the linear and nonlinear dynamics of 2D catenary risers, *Ocean Engineering*, 35, 616-636.
- 2.47 Chatjigeorgiou, I.K. (2008), Application of the WKB Method for Catenary-Shaped Slender Structures, *Mathematical and Computer Modelling* 48, 249-257.
- 2.48 Chatjigeorgiou, I.K. (2008), Solution of the boundary layer problems for calculating the natural modes of riser-type slender structures, *Journal of Offshore Mechanics and Arctic Eng, JOMAE-ASME*, 130, 011003-1.
- 2.49 Chatjigeorgiou, I.K., Mavrakos, S.A. (2007), Second-order sum-frequency wave diffraction by a truncated surface-piercing cylinder in bichromatic waves, *Journal of Marine Science and Technology* 12, 218-231.
- 2.50 Xiros, N.I., Chatjigeorgiou, I.K. (2007), Nonlinear identification and input-output representation of the modal dynamics of marine slender structures, *Journal of Offshore Mechanics and Arctic Eng, JOMAE-ASME*, 129, 188-200.
- 2.51 Chatjigeorgiou, I.K. (2006), A solution for the linearized dynamic problem of catenary risers, *Journal of Ship Technology Research, Schiffstechnik*, 53, 150-158.
- 2.52 Mavrakos, S.A., Chatjigeorgiou, I.K. (2006), Second-order diffraction by a bottom seated compound cylinder, *Journal of Fluids and Structures*, 22, 463-492.
- 2.53 Chatjigeorgiou, I.K., Mavrakos, S.A. (2006), Semi-analytical formulation of the second-order wave diffraction by a truncated-compound surface-piercing cylinder, *Journal of Ship Technology Research, Schiffstechnik*, 53, 26-38.

- 2.54 Chatjigeorgiou, I.K., Mavrakos, S.A. (2005), Nonlinear resonances of parametrically excited risers-numerical and analytic investigation for  $\Omega=2\omega_1$ , *Computers and Structures*, 83, 560–573.
- 2.55 Chatjigeorgiou, I.K., Mavrakos, S.A. (2005), Coupling instabilities for marine slender structures with applications to elastic risers and cables, *Journal of Ship Technology Research, Schiffstechnik*, 52, 2–13.
- 2.56 Chatjigeorgiou, I.K. (2004), On the parametric excitation of vertical elastic slender structures and the effect of damping in marine applications, *Applied Ocean Research*, 26, 22-33.
- 2.57 Chatjigeorgiou, I.K., Mavrakos, S.A. (2002), Bounded and un-bounded coupled transverse response of parametrically excited vertical marine risers and tensioned cable legs for marine applications, *Applied Ocean Research*, 24, 341-354.
- 2.58 Chatjigeorgiou, I.K., Mavrakos, S.A. (2001), Dynamic behavior of a marine cable under snap-loading conditions, *Journal of Ship Technology Research, Schiffstechnik*, 48, 171-180.
- 2.59 Chatjigeorgiou, I.K., Mavrakos, S.A. (2000), Comparative evaluation of numerical schemes for 2D mooring dynamics, *International Journal of Offshore and Polar Engineering*, 10, 301-309.
- 2.60 Mavrakos, S.A., Chatjigeorgiou, I.K. (1997), Dynamic behavior of deep water mooring lines with submerged buoys, *Computers and Structures*, 64, 819-835.
- 2.61 Mavrakos, S.A., Papazoglou, V.J., Triantafyllou, M.S., Chatjigeorgiou, I.K. (1996), Deep water mooring dynamics, *Marine Structures*, 9, 181-209.

### 3 Books

- 3.1 Chatjigeorgiou, I.K. (2018) *Analytical Methods in Marine Hydrodynamics*, Cambridge University Press, Cambridge, UK, ISBN 9781316838983; <https://doi.org/10.1017/9781316838983>
- 3.2 Chatjigeorgiou, I.K. (2015) *Dynamics of Pipelines Conveying Fluids – Applications in the Marine Environment*, e-book: ISBN 978-960-603-085-7 (in Greek). Hellenic Academics Libraries Link, National Technical University of Athens <http://repository.kallipos.gr/handle/11419/505>.
- 3.3 Mavrakos, S.A., Chatjigeorgiou, I.K. (Eds.) (2011), *Proceedings of the 26th International Workshop on Water Waves and Floating Bodies*, 17-20 April 2011, Athens, Greece, ISBN 978-960-254-694-9.

### 4 Book chapters

- 4.1 Chatjigeorgiou, I.K., Mavrakos, S.A. (2016) *Cable dynamics for marine applications*, Chapter 38 of Springer Handbook of Ocean Engineering (Eds. M. Dhanak and N. Xiros), ISBN 978-3-319-16648-3, e-ISBN: 978-3-319-16649-0 © Springer Dordrecht Heidelberg London New York 2016, p. 875-905.
- 4.2 Bitner-Gregersen, E.M., Bhattacharya, S.K., Chatjigeorgiou, I.K., Eames, I., Ellerman, K., Ewans, K., Hermanski, G., Johnson, M.C., Ma, N., Maisondieu, C., Nilva, A., Rychlik, I., Waseda, T. (2012), *Environment*, report submitted by committee I.1 to the International Ships and Offshore Structures Congress, ISSC 2012, 10-13 September 2012, Rostock, Germany, ISBN: 978-2-87700-131-8 (Eds. W. Fricke and R. Bronsart).
- 4.3 Mavrakos, S.A., Chatjigeorgiou, I.K. (2011) *Second-order wave induced loads on vertical bodies of revolution*, In: Marine Technology and Engineering, Eds.: Carlos G. Soares, Y. Garbatov, N. Fonseca, A. P. Teixeira, CRC Press, Taylor & Francis Group, 2011, ISBN 978-0-415-69808-5, London, U.K., 479 - 501 .
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  - 6.26 Mavrakos, S.A., Chatjigeorgiou, I.K., *Mean loading from wind and current for specific types of ships*, Progress report for the research project

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## **7 Participation in research projects/Specialized technical services**

- 7.1 Principal Investigator, *Horizontal Communication & Capitalization project for the innovation in Blue Growth at Mediterranean level*, InnoBlueGrowth (2016-2019) Project co-financed by the European Regional Development Fund and the Greek Programme of Public Investments (Ongoing)
- 7.2 Fellow, *Increasing Safety of Offshore Wind Turbines Operation: Study of the Violent Wave Loads*, SAFEMILLS (2014-2016) Sponsored by the FP 7 Program PEOPLE, Marie Curie Intra-European Fellowships for Outstanding Researchers, April 2014 – April 2016 (Completed).
- 7.3 Principal Investigator, *Violent Slamming Impulsive Hydrodynamic Loading on Jacket Foundations of Offshore Wind Turbines*, VIHYDRO (March 2015) Experimental Campaign Supported by the EC 7th FP "MARINET" Consortium. The experiments were carried out in the INSEAN Wave Tank, Rome Italy in March 2015 (Completed).
- 7.4 Researcher, *Multi-Purpose Floating Structures for Offshore Wind and Wave Energy Sources Exploitation*. Sponsored by the Hellenic General Secretariat for Research and Technology. Program ARISTEIA (2012-2015) (Completed).
- 7.5 Principal Investigator, *Hydroelastic Behavior of Vertical and Steel Frames Subjected to Third-Order Hydrodynamic Loading*, HELASFR (2013-2015) Sponsored by the Hellenic General Secretariat of Research and Technology (Completed).
- 7.6 Researcher, *Creation of National Program for the Exploitation of the Offshore Wind Potential in Aegean. Phase 1: Preliminary actions*. Program AVRA. Sponsored by the Hellenic General Secretariat for Research and Technology. Program EPAN II (Completed).
- 7.7 *The E<sup>4</sup> Containership*. Specialized technical services to WEGEMT acting as an expert for the evaluation of novel ideas in the context of VISIONS Olympics project concluded between the Commission of the European

- Communities and CESA. Contract No VOL2Co4-Io8RA3, December 2011 (Completed)
- 7.8 Principal Investigator, *Experimental and Numerical Investigation of the Hydrodynamic Loads and Wave Elevation on Concentric Vertical Cylinders*. Experimental Campaign Supported by the EC 6th FP “HYDRALAB III”. The experiments were carried out in the El Pardo Model Basin: Canal de Experiencias Hidrodinámicas de El Pardo Madrid, Spain (CEHIPAR) in December 2009 (Completed).
- 7.9 Principal Investigator, *Floating Thermal Station and Anahita Island*. Specialized technical services to WEGEMT acting as an expert for the evaluation of novel ideas in the context of VISIONS Loop III project concluded between the Commission of the European Communities and CESA. (WP5). Contract N° VL3C10-Io72oEF5.1, 2008 (Completed).
- 7.10 Principal Investigator, *How to Design Outriggers for Maximum Operation Envelope*. Specialized technical services to WEGEMT acting as an expert for the evaluation of novel ideas in the context of VISIONS Loop II project concluded between the Commission of the European Communities and CESA. (WP5). Contract N° VL2C24-I63EF5.2, 2007 (Completed).
- 7.11 Principal Investigator, *Identification and Optimization of Operational Limitations*. Specialized technical services to WEGEMT acting as an expert for the evaluation of novel ideas in the context of VISIONS Loop II project concluded between the Commission of the European Communities and CESA. (WP5). Contract N° VL2Co7-I6oEF2.1, 2007 (Completed).
- 7.12 Principal Investigator, *Dynamic Response of Vertical and Catenary Shaped Riser-Type Slender Structures*. Experimental research project on the dynamic behaviour of catenary shaped risers. The experiments were performed in the model basin of Ifremer in the Centre of Brest in France under Ifremer's program METRI2 sponsored by EU project ARI through the contract NR HPRI-CT-2001-00156, June 2007 (Completed).
- 7.13 Principal Investigator, *Solution of the Second-Order Diffraction and Radiation Hydrodynamic Problem of Two Concentric Cylinders for Applications on Wave Energy Conversion*, (1.2.2007-31.1.2009). Sponsored by National Technical University of Athens under the fundamental research program K. KARATHEODORI (Completed).
- 7.14 Principal Investigator, *Reliability of the Mooring System for the Floating Container Hub*. Specialized technical services to WEGEMT acting as an expert for the evaluation of novel ideas in the context of VISIONS project concluded between the Commission of the European Communities and CESA. (WP5). Contract N° VLiC44-Io4EF7.2, 2006 (Completed).

- 7.15 Principal Investigator, *Wave-current interaction with multiple axisymmetric bodies*. Two years research project funded by PYTHAGORAS II program (1.1.2005-31.12.2006). The program was co-funded by the European Social Fund 75% and national resources 25% (Completed).
- 7.16 Researcher, *Gas Import Floating Terminal – GIFT*. Two years research project (1.2.2005 – 31.1.2007), which was funded by the EC Directorate of Transportation. Project No 012404. The program was coordinated by DORIS Engineering, France, and was carried out in cooperation with DnV, Norway, CAT, France and LMC, England (Completed).
- 7.17 Researcher, *Hydrodynamic and hydroelastic analysis of fixed and moored floating vertical axisymmetric bodies for wave energy conversion*. Two years research project funded by PYTHAGORAS I program (1.3.2004 – 31.8.2006). The program was co-funded by the European Social Fund 75% and national resources 25% (Completed).
- 7.18 Researcher, *Measurements of drift forces, wave run-up and air gap on offshore structures*. Experimental research project that was carried out in EL PRADO MODEL BASIN (Canal de Experiencias Hidrodinamicas de El Prado, Madrid, Spain) in March 2003. Financial support was provided by the EC 5th FP "Transnational Access to Research Infrastructures" (Completed).
- 7.19 Researcher, *Thematic Network on Floating Structures Technology–FLOATECH*. Four years research project (1.7.2001 – 30.6.2005) funded by the EC General Directorate for Research. The project was carried out in cooperation with 27 universities and industrial companies (Completed).
- 7.20 Researcher, *Study and design for a special floating platform for the deployment of instrumentation packages of NESTOR institution*. One year project (2000) for the supply of specialized services to the NESTOR institution, Greece (Completed).
- 7.21 Principal Investigator, *Development of rules and regulations for the design, construction and certification of marinas and floating platforms*. Two years research project (1999–2001) funded by the Hellenic Register of Shipping (Completed).
- 7.22 Researcher, *Optimization for the design and analysis procedures in ports: Application in ports of Alexandroupoli, Lagos and Kavala*. Three years research project (1996-1998) supported by the program EKBAN II funded by the District of Easter Macedonia and Thrace (Completed).
- 7.23 Researcher, *Study of mooring system for floating docks No 3, 6 και 7 in Crete dock yard*. Specialized services to the Hellenic Navy (April 1995 – March 1996) (Completed).

- 7.24 Researcher, *Mooring system study for a cable deployment vessel*. Specialized services to FULGOR S.A., February 1995 (Completed).
- 7.25 Researcher, *Hydrodynamic analysis of floating breakwaters*. Two years (1993-1995), research project funded by the Hellenic General Directorate for Research and Technology (Completed).
- 7.26 Researcher, *Use of buoys to reduce static and dynamic tension in deep water mooring lines: a pilot study*. Two years (1989-1990), research project funded by the EC General Directorate of Energy in cooperation with TECNOMARE S.p.A. (Completed).