
Eur.Ing Dr. Spyros Hirdaris

BEng, MSc, PhD, CEng, MIMechE, MIMarEst, MRINA, MSNAK, MTCG

Visionary academic and innovator with 18 years international experience, core strengths in Maritime & Offshore Technology R&D, research accomplishments on fluid structure interactions, design for safety and international multi-disciplinary research initiatives. Results orientated research leader with exceptional management skills, strong delivery record and corporate social responsibility profile, excellent research planning skills and good understanding of the maritime and offshore industries. To date Highlights of expertise include:

- ◆ High impact international research on flexible fluid structure interactions (hydroelasticity of ships), wave loading and emerging technologies (e.g. SMR nuclear technology) within the context of risk based assurance.
- ◆ Innovation management, technology policy and strategy via the (1) initiation, management and delivery of multimillion international maritime R&D portfolio and (2) participation in technology groups hosted by IMO, EU and UK.
- ◆ Development of Maritime Classification Products with focus on design assessment (strength and stability)
- ◆ Consultancy on structural dynamics, hydrodynamics using innovative design and simulation tools
- ◆ Well-rounded understanding of maritime and offshore engineering practices attained via continuous professional development and international appointments at Europe and the Far East

Academic Qualifications

- ◆ PhD in Maritime Technology (Hydroelasticity of Ships), University of Southampton, UK ; EPSRC Scholarship (2002)
- ◆ MSc in Advanced Mechanical Engineering (Design & Manufacture), University of Swansea, UK ; EU ESF Scholarship (1998)
- ◆ BEng (1st Class Hons.) in Mechanical Engineering, University of Swansea, UK, Welsh Gov. Scholarship (1994 – 1997)

Professional Accreditations

- ◆ European Engineer (Eur.Ing) and Member of the International European Associations (FEANI) – No.28565
- ◆ Chartered Engineer (CEng) and Member of the UK Engineering Council – No. 567774
- ◆ Member of the Royal Institution of Naval Architects (MRINA), UK – No. 219666
- ◆ Member of the Inst. of Marine Eng. Science & Tech (IMarEst) , UK – No. 801611
- ◆ Member of the Institution of Mechanical Engineers (MIMechE), UK – No. 75560187
- ◆ Member of the Technical Chamber of Greece (MTCG) – No. 88597
- ◆ Honorary Member of the Society of Naval Architects of Korea (SNAK)

Professional Training (see Annex 1)

Attended various professional training programs and periods of practice at UK, South Korea, Greece, China and Poland with focus on Management, Surveys and Technical Engineering.

Esteem Indicators & Service Awards

- ◆ **The Global Lloyd's List Innovation Award** for participation in the EU FP7 project People localisation for the safe evacuation of large passenger ships – LYNCEOUS (2013).
- ◆ **The UK IMechE/F1 Petronas Ross Brown Challenge Innovation in Brand Award** for charitable contributions toward design and build of the RNLI rescue boats (2011).
- ◆ **Member of the International Ship Structures Congress.** Served as member of the ISSC/ITTC Liaising committee on Uncertainty Modelling; Committee II.1 on Quasi Static Response, Chair & Member of the Committee I.2 on Loads (2006 – present).
- ◆ **Vice President of the RINA London Branch** with responsibility to initiate and manage events on behalf of RINA and IMarEst for the benefit of the maritime and engineering communities at London, UK and South Korea (2005 – 2013).
- ◆ **Classification Society Representative in S&T policy groups** on systems engineering, ship safety, maritime environment, human factors. Initiatives were hosted by the EU (e.g. CESA WATERBORNE TP, ECOMAR, EMSA, EDA), the UK Maritime Industries Leadership Council and the IMO (2009 – 2012).

Academic experience (for PhD supervisions see Annex 2)

ASSOCIATE PROFESSOR on MARITIME SAFETY, Aalto University, FI (Sept 2018 -). I have been elected Associate Professor by the Faculty of Engineering (Maritime Technology) of Aalto University in June 2018. My appointment focuses on Maritime Safety (Design for Safety, Flexible fluid Structure Interactions and enabling research balancing the requirements of low carbon economy against future safety standards). I teach at the MSc courses on Naval Architecture/Marine Engineering hosted by Aalto University and the Nordic Maritime MSc programme organized by NTNU (Norway), Aalto (FI), Chalmers (Sweden). My teaching portfolio comprises of courses on Maritime Safety, Ship Dynamics (resistance, propulsion, loads, general hydrodynamics), Autonomy and Ship Design.

VISITING SCHOLAR, Aalto University, FI (Jan 2018 – Sept 2018). Teaching and Curriculum development of the Aalto MSc programme on Naval Architecture and Marine Engineering. I have delivered an MSc course on Ship Dynamics (Hydrodynamics, resistance, propulsion, ship dynamics).

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Research advisor on Marine Hydrodynamics, Fluid Structure Interactions and Risk Based ship design developments with focus on maritime autonomous systems and Goal Based Standards for Polar shipping operations.

VISITING RESEARCH FELLOW, University of Southampton, UK (2005 – present). Until December 2017 I lead and contributed on behalf of Lloyd's Register Group Ltd. and their Foundation (LRF) to a number of international maritime think tanks with focus on technology and education. Innovation partners involved EU technology providers, UK Government (EPSRC, TSB) and International Industry partners.

- ◆ Contributed toward raising 12M GBP EPSRC UK funding for a doctorate center on "Engineering for the Maritime Environment" and 14M Euro funding for EU FP7 WATERBORNE projects on "Maritime Safety"
- ◆ Initiated the funding of Lloyd's Register sponsored research grants on Nonlinear Ship hydrodynamics, Nuclear Marine Propulsion and supervised 6 PhD students in association with leading academics from the Universities of Newcastle Upon Tyne and Strathclyde.
- ◆ Investigator for research grants on the development of Grid based Hydroelasticity solvers. Work involved implementation of frequency domain solvers and project management on behalf of Lloyd's Register and the UK Department of Transport.
- ◆ Delivered seminars and training courses on marine hydrodynamics, hydroelasticity of ships, ship dynamics to a number of international universities in China, South Korea & Greece (e.g. Shanghai Jia Tong, Pusan National University, NTUA, etc.).

VISITOR (Informal appointments), Universities of Strathclyde and Newcastle UK (2008 – 2013). As part of leading the Lloyd's Register Strategic Research programme on Ship Hydrodynamics I have visited on regular basis academics from the Maritime Technology groups of these schools to discuss progress of PhD studies on non linear marine hydrodynamics. The collaboration lead to joint journal and conference publications.

RESEARCHER, University of Southampton, UK (1998 – 2002). Conducted Research on flexible fluid structure interactions. Work resulted on the award of a PhD on "Prediction of Dynamic Loads for the design of Bulk Carriers". Delivered undergraduate courses to Ship Science students (Subjects: ship studies, AutoCAD design, ship hydrostatics and stability, marine structures & hydrodynamics).

TEACHING FELLOW, University of Swansea, UK (1997 – 1998). Delivered courses and laboratory classes to mechanical engineering students (Subjects: applied mechanics, structural dynamics, engineering design).

Industrial experience, Lloyd's Register (UK & Asia)

RESEARCH & INNOVATION LEAD, Global Technology Centre, Southampton, UK (2016 to 2017)

Manager of a 10M GBP multi-disciplinary technology project portfolio with responsibility to ensure exceptional technical service delivery, budget and contract management. Head of foresight activities (roadmaps and scenarios).

- ◆ Demonstrated expertise to initiate and deliver international project initiatives driven by business, technological and regulatory trends. Work involved supporting the development of R&T collaboration networks under Innovate UK, Horizons 2020 and internal company initiatives with impact on maritime and offshore business.
- ◆ Managed and delivered key multidisciplinary technology projects on Ship Lifecycle Management Software solutions, Autonomous Shipping and Arctic Operations. Work involved external representation in international workshops, project and people management, development of presentations, papers and reports.
- ◆ Spearheaded innovation models to streamline strategy for the development of future life cycle engineering services. Defined and directed activities such as scenario planning, road mapping and testing of technologies via monitoring and participation in international fora.

TECHNOLOGY GROUP LEAD, Busan, South Korea (2013 to 2016)

Delivered efficient services to 5* International Clients by consultancy and marine new construction activities.

- ◆ Lead hull and machinery new construction surveys for Container and Gas ships at Hyundai Heavy Industries (Clients : BW Group, Seaspans/Yang Ming, Shell/Nigerian Gas, Petronas).
- ◆ Established corporate technology strategies at Asia (Global to local approach) by facilitating strategic discussions with Korean Major Shipbuilders (Hyundai, Samsung, STX, Daewoo), Academia (Pusan and Seoul National Universities) and ship owners (Panocean, Hanjin).
- ◆ Delivered consultancy & training services on ship safety (e.g. FLNG Slamming loads - Client: Samsung; Loading rates for bulk carriers - Client: BHP Billiton; Sloshing - Clients: Samsung, Hanjin, DSME, Hyundai).

ASSISTANT TECHNICAL DIRECTOR (R&D Stream), London, UK (2011 to 2013)

Leveraged broad scope of industry knowledge, lead 100 staff to deliver technology strategy on key maritime engineering disciplines (hull structures, marine engineering, human factors, and risk). Lead the development of advisory framework services for emerging (nuclear & wind) marine propulsion technologies. Promoted brand participation in charitable activities of key UK Professional and Charitable Institutions (e.g. RNLI, IMechE).

- ◆ Steered efforts for IMO, EU, UKGov ad-hoc groups to drive technology and regulatory strategy activities implemented in roadmaps (e.g. WATERBORNE^{TP} FP8, EMSA Passenger Ship forum, EU Defence Agency, UK Maritime Leadership Council roadmaps).
- ◆ Marketed the Lloyd's Register Technology Plan to key clients (e.g. BP, Shell, Rolls Royce, DSME, COSCO etc.).

- ◆ Project managed 15M GBP collaborations on SMR Nuclear & Wind Assisted propulsion concepts (Clients: Enterprises Shipping & Trading - GR, BMT - UK, Gen4Energy - USA, Zodiac Maritime - UK).

MARITIME ENGINEER, Strategic Research & Advisory Services, London, UK (2004 to 2011)

Achieved bottom-line results through applying ardent engineering approaches. Following work on the validation of ship hydrodynamic solvers and the development of ship strength assessment classification procedures achieved senior status in 2008. Consequently developed IMO stability regulations, ensured exceptional technical service delivery, managed functional teams and developed partnerships for Ship Emergency Response Services.

- ◆ Lead representation of Lloyd's Register at the IMO Maritime Safety Committee and contributed to the IMO Safety of Life at Sea (SOLAS) 2009 Regulations on Goal Based Damaged Stability.
- ◆ Initiated and successfully lead a 50M GBP international strategic research project portfolio on functional ship safety, human factors, and marine environment in line with the requirements of EU technology majors, Ship Owners, Korean & Chinese shipyards.
- ◆ Lead service delivery and provided naval architecture (ship strength & stability) support for 120+ emergencies and exercises involving ocean-going vessels.
- ◆ Developed and validated procedures on strength assessment of Hatch Covers and Container Ships by suitable use of Finite Element (e.g. FEMAP, ANSYS, NASTRAN) and Hydrodynamic (e.g. PRECAL) solvers.
- ◆ Developed operational ship safety procedures and tools on Ship Load factors for Great Lakes Bulk Carriers and Floating docks by suitable use of Classification Rule criteria and marine hydrodynamics (Clients : Algoma Central Corporation, Hyundai Heavy Industries).

Early Career (UK & Greece)

MARINE ENGINEER (Hellenic Navy), Seagoing & Shipyard Based, Athens, Greece (2002 to 2004). Served as Weapons Engineer on HS Chios LST (8 months) and Quality Control staff for the new construction of OSPREY Class gun – boats at the Hellenic Navy Detachment of Hellenic Shipyards (7 months).

Additional Experience: Consultant Naval Architect ▪ British Maritime Technology, Southampton, UK (2001 – 02); **Structural Engineer** ▪ Consultancy Engineering Technology (CETEC) Ltd., Romsey, UK (1999 – 00); **Mechanical Engineer (Noise & Vibration)** ▪ Stoneman & Co. Ltd. Swansea, UK (1998 – 99).

Key Research Grants (see Annex 3)

More than 15 years of experience in the initiation, management and delivery of EU, UK Government and Industry sponsored strategic research grants with focus on "Ship Safety and Engineering for the Maritime Environment". For the period 2004 – 2014 while working for Lloyd's Register Group Ltd. I have been involved with 8 EU projects valued at 15.8 M GBP. I have generated direct research income of 2.5M GBP. Non confidential research grants are listed in Annex 2.

Conference and Journal Activities (see Annex 4)

- ◆ Organised and chaired sessions in more than 18 International conferences (e.g. PRADS, OMAE, ISOPE, IMAM, IMDC, RINA, etc.).
- ◆ Assistant Editor of the for the Proceedings of the IMechE - Part M: J. of Eng. for the Maritime Environment (Sage – ISSN : 1475-0902).
- ◆ Member of the Editorial board of Ocean Eng. (Elsevier – ISSN: 0029-8018), Ships & Offshore Struct. (Taylor & Francis Group Ltd. – ISSN: 1744-5302).
- ◆ Guest Editor for the Ships and Offshore Structures Vol. 11(1) special issue: "Loads for Ships and Offshore structures". The volume includes 12 papers from 54 authors representing 13 countries with active participation in Thin Walled Structures, Maritime & Offshore Engineering communities.
- ◆ Guest editor for the Ocean Engineering (Elsevier) Vol. 86 special issue: "Uncertainty Modelling for Ships and Offshore Structures". The volume includes 6 papers from 29 authors representing 18 countries with active participation in the International Towing Tank Congress (ITTC) & the International Ship Structures Congress (ISSC).
- ◆ Scientific Journal reviews: Int. J. of Fatigue (ISSN: 0142-1123); Fluids and Structures (ISSN: 0889-9746); Marine Structures (ISSN: 0951-8339); Nuclear Eng. and Design (ISSN : 0029-5493); Trans. of Royal Inst. of Nav. Archs. (ISSN:14798751); ASME J. of Offshore Mechanics & Arctic Eng (ISSN : 0892-7219); Int. J. of Offshore & Polar Eng. (ISSN :1053-5381); J. of Zhejiang University-SCIENCE A on Applied Physics & Eng. (ISSN 1673-565X); Accident analysis & prevention (ISSN:0001-4575); J. Ship Research (ISSN : 0022-4502); Trans. Soc. Nav. Archs and Mar. Eng. (ISSN : 0081 161).
- ◆ Conference Reviewer: Practical design of ships & Offshore Structures PRADS (2013); FAST Sea Trans. (2009); Int. Symp. on Advanced Structural Reliability Analysis ASRANET (2008,2010); Hydroelasticity in Maritime Technology (2009); Int. Maritime Design Conf. (2012); International Ship, Offshore & Polar Eng. Conference (2014, 2015); 18th Int. Conf. on Ships & Shipping Research (2015); 5th Int. Conf. on Mar. Structures (MARSTRUCT 2015); ASME Conf. on Ocean Offshore & Arctic Engineering (OMAE 2016, 2015, 2012).

Key Publications (see Annex 5 and https://www.researchgate.net/profile/Spyros_Hirdaris)

1. Ringsberg, J.W., Heggelund, S.E., Lara, P., Jang, B.S. and Hirdaris S.E. (2017) Structural response analysis of slamming impact on free fall lifeboats. *Marine Structures – Special Issue with papers from the 19th International Ship Structures Congress*, 54, pp. 01- 15 ([invited paper](#)).
2. Alfred Mohammed, E., Benson, S.D., Hirdaris, S.E. and Dow, R.S. (2016) Design safety margin through ultimate hull girder load combination analysis. *Marine Structures*, 46, pp. 78 – 101.
3. Hirdaris, S.E., Lee, Y., Mortola, G., Incecik, A., Turan, O., Hong, S.Y., Kim, B.W., Kim, K.H., Bennett, S., Miao, S.H., Temarel, P. (2016) The influence of nonlinearities on the symmetric hydrodynamic response of a 10,000 TEU Container ship. *Ocean Engineering*, 111, pp. 166-178.
4. Hirdaris, S.E. (2015) Loads on ships and offshore structures. *Ships and Offshore Structures*, 10(5), p. 459 ([Editorial](#)).
5. Shin, K.H., Jo, J.W., Hirdaris, S.E., Jeong, S.G., Park, J.B., Lin, F., Wang, Z., White, N. (2015) Two- and three-dimensional springing analysis of a 16,000 TEU container ship in regular waves. *Ships and Offshore Structures - Special Issue on Loads for Ships and Offshore Structures (Guest Editor: S.E. Hirdaris)*, 10(5), pp. 498-509 ([invited paper](#)).
6. Hirdaris, S.E. (2014) Uncertainty modelling for Ships and Offshore structures. *Ocean Engineering*, 86, pp. 1-2 ([Editorial](#)).
7. Papanikolaou, A., Alfred Mohammed, E., Hirdaris, S.E. (2014) Stochastic uncertainty modelling for ship design loads and operational guidance. *Ocean Engineering*, 86, pp. 47-57 ([invited paper](#)).
8. Hirdaris, S.E., Bai, W., Dessi, D., Ergin, A., Gu, X., Hermundstad, O.A., Huijsmans, R., Iijima, K., Nielsen, U.D., Parunov, J., Fonseca, N., Papanikolaou, A., Argyriadis, K., Incecik, A. (2014) Loads for use in the design of ships and offshore structures. *Ocean Engineering*, 78, pp. 131-174 ([Review paper](#)).
9. Hirdaris, S.E., Cheng, Y.F., Shallcross, P., Bonafoux, J., Carlson, D., Prince, B., Sarris, G.A. (2014) Considerations on the potential use of nuclear Small Modular Reactor (SMR) technology for merchant marine propulsion. *Ocean Engineering*, 79, pp. 101-130.
10. Amdahl, J., Collette, M., Cui, W.C., Ehlers, S., Hirdaris S.E., Hong, L., Nakamura, Y., Pedersen, P.T., Ronning, L., Zhang, S. (2014) Discussion on the paper by J.K Paik, J. Czujko, J.H. Kim, S.I. Park, M.D. Shafiqul Islam and D.H. Lee entitled: "A new procedure for the nonlinear structural response analysis of offshore installations on fires". *Transactions of the Society of Naval Architects and Marine Engineers (SNAME)*, 121, pp. 245-250 ([invited paper](#)).
11. Hirdaris, S.E., Cheng, Y.F., Shallcross, P. Bonafoux, J., Carlson, D. Prince, R. and Sarris G.A. (2014) Reply to the discussion of the paper entitled : "Concept Design for a Suezmax Tanker powered by a 70 MW Small Modular Reactor", Discussers: G. Youngsun, C. Park, P. Howarth, I.G. Woo, A Sigiouras, P. Wrobel, B. Sang, C. McKesson, R. Hill – Sir, A. Papanikolaou, N. Catsaros. *Transactions of the Royal Institution of Naval Architects - Part A: International Journal of Maritime Engineering*, 156(A1), pp. 105-113.
12. Hirdaris, S.E., Cheng, Y.F., Shallcross, P. Bonafoux, J., Carlson, D. Prince, R. and Sarris G.A. (2014) Concept design of a Suezmax Tanker propelled by a 70 MW SMR. *Transactions of the Royal Institution of Naval Architects - Part A: International Journal of Maritime Engineering*, 156(A1), pp. 37-59.
13. Hirdaris, S.E. (2014) Tanker Technology – Taking the Nuclear Option, *The Naval Architect – A publication of the Royal Institution of Naval Architects*, Issue 3 (March '14), Section 1, Feature 1 : In Focus, pp. 26-33, ISSN 03060209.
14. Alfred Mohammed E., Chan, H.S., Hirdaris, S.E. (2012) Global wave load combinations by cross-spectral methods. *Marine Structures*, 29, pp. 131-151.
15. Lee, Y., Nigel White, N., Wang, Z., Hirdaris, S.E. and Zhang, S. (2012) Comparison of springing and whipping responses of model tests with predicted nonlinear hydroelastic analyses. *The International Journal of Offshore and Polar Engineering (IJOPE)*, 22(3), pp. 1-8.
16. Mortola G., Incecik, A., Turan, O. and Hirdaris, S.E. (2011) Nonlinear analysis of ship motions and loads in large amplitude waves. *Transactions of the Royal Institution of Naval Architects - Part A: International Journal of Maritime Engineering, Special issue in honor of William Froude*, 153(2), pp. 81-87 ([invited paper](#)).
17. Chapchap, A., Hudson, D.A., Temarel, P., Ahmed, T.M., Hirdaris, S.E. (2011) The influence of forward speed and nonlinearities on the dynamic behaviour of a container ship in regular waves. *Transactions of the Royal Institution of Naval Architects - Part A: International Journal of Maritime Engineering, Special issue in honor of William Froude*, 153(2), pp. 137-148 ([invited paper](#)).
18. Subin, K.K., Das, P.K., Quigley, J. and Hirdaris, S.E. (2012) Risk Analysis of Damaged Ships - A data driven Bayesian approach. *Ships and Offshore Structures*, 7(3), pp. 333-347.
19. Hirdaris, S.E., White, N., Angoshtari, N., Johnson, M.C., Lee, Y.N. Bakkers, N. (2011) Wave loads and flexible fluid structure interactions - present developments and future directions. *Ships and Offshore Structures*, 5(4), pp. 307-325.
20. Hirdaris S.E. (2010) Wave Loads Developments and directions, *The Naval Architect - A publication of the Royal Institution of Naval Architects*, Issue 6 (June '10), Section 3: In depth – Hydrodynamics, pp. 26-31, ISSN 03060209.
21. Hirdaris, S.E. and Temarel, P. (2009) Hydroelasticity of Ships - recent advances and future trends. *Proceedings of the IMechE, Part M: Journal of Engineering for the Maritime Environment, Special Issue on Fluid Structure Interactions in honor of Professor W.G. Price FRS (Guest Editor : P. Temarel)*, 223(3), pp. 305-330 ([invited paper](#)).
22. Hirdaris, S.E., Bakkers, N., White, N., Temarel, P. (2009) Service factor assessment of a Great Lakes Bulk Carrier incorporating the effects of hydroelasticity. *The Society of Naval Architects and Marine Engineers (SNAME) Marine Technology Journal*, 46(2), pp. 116-121.
23. Storhaug, G., Hovem, L., Hirdaris, S.E., Malenica, S., Cui, W.C. (2008) Discussion to the paper by J. Juncher Jensen, Preben T. Pedersen, Bill Shi, Sue Wang, Martin Petricic, Alaa E. Mansour entitled: "Wave induced extreme hull girder loads on container ships". *Transactions*

of the Society of Naval Architects and Marine Engineers (SNAME), 116, pp. 143-152 (invited paper).

24. Hirdaris, S.E. and Lees, A.W. (2005) A unified conforming finite element for the vibration of thick beams and frames, *International Journal for Numerical Methods in Engineering*, 62(4), pp. 579-599.
25. Hirdaris, S.E., Price, W.G. and Temarel, P. (2003) Two- and Three-dimensional Hydroelastic Analysis of a Bulker in Waves. *Marine Structures - Special issue on Bulk carriers (Guest Editor: P. Grundy)*, 16, pp.627-65 (invited paper).

Annexes

Annex 1 : Training Records

Annex 2 : PhD Supervisions

Annex 3 : Non Confidential Research Grants

Annex 4 : Conference organizational activities

Annex 5 : Complete publications record

"Management programs"

- 2015** Effective Communication & Client Training Skills (3 days) - Pusan, Korea
2010 – 2011 Lloyd's Register Leadership & Talent Programme (1 year part time) - London, UK
2009 Lloyd's Register Train the Trainer (1 week) - London, UK
 Lloyd's Register People Management programme (4 weeks) - London, UK

"Field Surveyor training"

- 2016** Lloyd's Register Gas Ship Surveys Course (1 week) - Pusan, Korea
2015 Lloyd's Register Safety and Maritime Surveys E – programme (2 days) - Pusan, Korea
 Marine New Construction practical (7 months) - HHI, Ulsan, Korea
2013 Lloyd's Register Global Safety Certificate (2 days) - Pusan, Korea
 Lloyd's Register Marine New Construction practical (2 weeks) - HHI, Ulsan, Korea
2012 Lloyd's Register Marine New Construction Course (1 week) - London, UK
 Lloyd's Register Marine Statutory surveys
 Lloyd's Register /TWI Materials & NDE Course (3 weeks) - London & Cambridge, UK
 Lloyd's Register & Warshash Maritime Academy, Electrical & Control Engineering Surveys (2 weeks), Southampton, UK
 Lloyd's Register Hull Planned Maintenance Scheme (1 week) - London UK
2009 Lloyd's Register Confined Space entry (1 day) - London, UK
2007 Lloyd's Register Marine New Construction practical (6 months) - New Szczecin Shipyards, Poland
 Lloyd's Register, Introduction to Metallurgy and Welding in Marine Environment (3 days) - London, UK

"Technical Training"

- 2015** LR Slushing Assessment (2 days) - Pusan, Korea
2014 LR Hydrodynamics (3 days) - Pusan, Korea
2013 Design support Risk Assessment Course (3 days) - London, UK
2008 KAPLAN Engineering Risk Management (2 days) - Birmingham, UK
 IACS Formal Safety Assessment (3 days) - London, UK
2007 Wessex Inst. Of Technology , Dynamics of floating structures and model testing (2 days) - Southampton, UK
 Wessex Inst. Of Technology , Theory and practise of mooring dynamics (3 days) - Southampton, UK
2006 Lloyd's Register Ship Emergency Response Service (1 week) - London, UK
2005 Marine Technical Induction course (1 week) - London, UK
2001 RINA Design and Operation of Bulk Carriers (2 days) - London, UK
 RINA Design and Operation of Container ships (2 days) - London, UK

- ◆ 2017 – in progress : Dynamics of RNLI search and rescue boats [with Birmingham, R., Dow, B. and Benson, S.D., University of Newcastle, UK]
- ◆ 2015 : Alfred Mohammed E. : Design safety margin through ultimate hull girder load combination analysis [with Benson, S.D. and Dow, R.S., University of Newcastle – UK]
- ◆ 2013 : Dedes, E. : Hybrid power train concepts [with Turnock, S.R. and Hudson, D.A., University of Southampton, UK]
- ◆ 2012: Mortola, G : Nonlinear ship motions and loads using large amplitude motions [with Incecik, A. and Turan, O., University of Strathclyde, UK]
- ◆ 2012 : Chapchap A. : Body nonlinear hydrodynamics [with Temarel, P., University of Southampton, UK]
- ◆ 2012: Risk analysis of damaged ships using Bayesian approach [with Das, P.K., University of Strathclyde, UK]

Annex 3 (Non-confidential research grants)

EU programs

- 2018** **FLARE**, Flooding, probabilistic damage stability, risk models, grounding, collision, risk-based design and operation, life-cycle risk management, fatalities, evacuation, crashworthiness, Goal-Based Standards
- 2017** **AZEF**, "Advanced Zero Emission Ferries" (EU Horizons 2020 Grant, Shipbuilding & Equipment Manufacturing, *Proposal under review; Projected EU Commission award: 11.5 Million Euro; LR award: 350 K Euro*).
- 2016** **SHIPLYS**, "Ship Life Cycle Software Solutions" (EU Horizons 2020 Grant, System modelling and life-cycle cost optimization for waterborne assets, EU Commission award: 6.2 Million Euro; LR award : 270 K Euro).
- 2012** **FAROS**, "Human Factors in Risk Based Ship Design Methodology" (EU FP7 WATERBORNE Grant, Human factors in shipping safety, EU Commission total Award : 3.5 Million Euro ; LR award : 600 K Euro).
HILDA, "High Integrity Low Distortion Assembly" (EU FP7 WATERBORNE Grant, Innovative structural and outfitting materials for ships including inland ships, EU Commission total award: 2.8 Million Euro; LR award: 520 K Euro).
AdaM4Eve, "Adaptive and Smart Materials & Structures for More Efficient Vessels" (EU FP7 WATERBORNE Grant, Innovative structural and outfitting materials for ships including inland ships, EU Commission total award: 3.0 Million Euro, LR award: 284.4 K Euro).
- 2011** **X_SCAN**, "Laser Guided Robotic Welding for Maritime Applications" (EU FP7 Research Executive Agency Grant in Materials and NDE, EU Commission total award: 2.0 Million Euro, LR award: 80 K Euro).
LYNCEON, "People Localization for Safe Ship Evacuation During Emergency" (EU FP7 Research Executive Agency Grant in Human Factors, EU Commission total award: 2.5 Million Euro, LR award: 200 K Euro).
- 2009** **GOAL_DS**, "Goal Based Standards for Damage Stability" (EU FP7 WATERBORNE Grant, Safety and Security by Design, EU Commission total award: 3.0 Million Euro, LR award: 360 K Euro).

Lloyd's Register Strategic Research Grants

- 2009** **Nonlinear ship hydrodynamics** (Lloyd's Register Group Ltd. Strategic Research award: 250 K GBP).
Merchant marine nuclear propulsion by SMR technologies (Lloyd's Register Group Ltd., Strategic Research Award: 1.5 Million GBP).

- 2018** 13th International Marine Design Conference (IMDC'18), Helsinki, FI (Role: Member of Local Organizing Committee, Paper Reviewer).
- 2016** International Conference. on Ships and Offshore Structures (ICSOS), Hamburg, Germany (Role: Member of the Scientific Board, Paper reviewer).
ASME 35th International Conference on Ocean, Offshore & Arctic Engineering (OMAE), Busan, South Korea (Roles: Chair of various sessions related with Ships & Offshore Structures Safety & Reliability, Ocean Engineering; Training Module Leader - Global Marine Trends 2030; Member of the Local Organising Committee; Paper reviewer).
- 2015** Korea Maritime Safety Conference, Busan, South Korea (Role: Session Chair - Maritime Safety Technology).
The 18th International Conference on Ships and Shipping Research (NAV 2015), Lecco (Milan), Italy (Role: Member of the Technical Committee).
- 2014** The 2nd Offshore Korea Conference, November 2014, Busan, South Korea (Role: Session Chair - Offshore Support Vessels).
The 2nd ITTC/ISSC Joint Workshop on uncertainty modelling for ships and offshore structures, Copenhagen, Denmark (Role: Member of the Technical Committee).
The 7th International Conference on Thin Walled Structures (ICTWS ' 14), Busan, South Korea (Role: Session Chair - Ultimate Strength and Dynamic response).
The 24th International Society of Offshore and Polar Engineers Conference (ISOPE), Busan, South Korea (Role: Session Chair – Hydroelasticity & Sloshing Symposium Organiser)
- 2013** The 12th International Symposium on Practical Design of Ships and other Floating Structures (PRADS), Changwon City, South Korea (Role: Session Chair - Wave Loads).
The 1st International Workshop on Ship Hydrodynamics (IWSH), Seoul, South Korea (Role: Session Chair - Wave Loads).
- 2012** Passenger Ship Safety Stakeholder Conference, Brussels, Belgium (Role: Panelist on passenger ship safety).
11th International Marine Design Conference (IMDC'12), Glasgow, UK (Role: Member of Local Organising Committee, Keynote Speaker and Session Chair - Wave Loads).
The 1st Joint ISSC/ITTC International Workshop on Uncertainty Modelling for Ships and Offshore Structures (UMSOS), Rostock, Germany (Role : Main Organiser, LR presenter & panelist).
- 2011** The 3rd Lloyd's Maritime Academy Conference on Marine Structural Failures, London, UK (Role: Conference Chair).
The 2nd UK Marine Technology Postgraduate Conference UK MTPC, Southampton, UK (Role: Session Chair - Fluid Dynamics).
- 2010** The UK Royal National Lifeboat Institution (RNLI) Conference on "Safety and performance at the workplace today" (Role: Lead organiser).
The Royal Institution of Naval Architects & Lloyd's Register Strategic Research Group Conference on "Advances in Applied and Theoretical Hydrodynamics – Past and Future in honor of William Froude", Portsmouth, UK (Role: Co-organiser & Session Chair: Loads).
The 1st Lloyd's Maritime Academy Conference on Ship Design Assessment, London, UK (Role: Conference Chair).
The 5th International Symposium on Advanced Structural Reliability Analysis in Engineering (ASRANet), Edinburgh, UK (Role: Session chair - Wave Loads).
The 1st UK Marine Technology Postgraduate Conference UK MTPC, Southampton, UK (Role: Session Chair - Hydrodynamics).
- 2009** The 1st Lloyd's Maritime Academy Conference on Marine and Ship Fatigue, London, UK (Role: Conference Chair).
The 5th International Conference on Hydroelasticity in Marine Technology (HYELAS), Southampton, UK (Role: Co-Editor of Conference Proceedings, Member of the local organising committee & Session Chair - Wave Loads).
- 2008** The 2nd Lloyd's Maritime Academy Conference on Marine Structural Failures, London, UK (Role: Conference chair).
4th International Symposium on Advanced Structural Reliability Analysis in Engineering (ASRANet), Athens, Greece (Role: Session Chair - Accidental Loads).

Description : To date I have published 113 articles with significant impact on maritime safety research. The focus of my research has been on ship loading and the implementation of emerging technologies in engineering for the maritime environment (e.g. SMR nuclear propulsion). A selection of papers can be downloaded from:

- https://www.researchgate.net/profile/Spyros_Hirdaris or
- <https://independent.academia.edu/WwwlrorgSpyrosHirdaris>
- https://www.scopus.com/hirsch/author.uri?stateKey=CTOF_676383777&accessor=CTO&origin=cto&display=hIndex&documentCount=30&txGid=0

My portfolio of peer reviewed publications comprises of 3 books [1–3] with emphasis on ship loads and hydroelasticity of ships, 6 book chapters [4–9] with contributions on ship loads and responses to the International Ships and Offshore Structures Congress (ISSC), 25 contributions to high impact International Maritime Technology Journals [10 – 34]. Although ISSC contributions are not accounted for by traditional scientific citation indices the ideas I have introduced have been broadly referenced since 2002 by the ISSC Technical Committees on Loads, Quasi Static Response, Dynamic Response and partly by the International Towing Tank Congress (ITTC) Seakeeping and Ocean Engineering Technical Committees. My peer review Journal contributions mainly focus on ship loads and hydroelasticity [10 – 34]. They also include selected niche strategic research contributions to Small Modular Reactor (SMR) nuclear technology [18, 20, 21] and linear structural dynamics principles implemented by higher order finite element methods [33,34]. From the total of my 25 contributions to International peer reviewed Journals 9 papers are invited contributions that appear in Journal special issues [10,14,16,19,25,26,30,32] and 2 are "Editorial Notes" with focus on ship loads published at the peer reviewed Journals of Ships and Offshore Structures (Taylor and Francis Group Ltd.) [13] and Ocean Engineering (Elsevier) [15]. Jointly, these "Editorial Notes" introduce 18 paper contributions from 83 authors representing 31 countries with interest in ship loads and maritime technology. The strong international profile of my publications strengthened over the last 7 years where citations and contributions from Asia (mainly South Korea, China, Japan), Europe (mainly Greece, UK, Norway, Germany, Croatia, Turkey and Italy) and Americas (mostly Canada, but lately also USA and Brazil) become progressively evident. My portfolio of conference papers has strong international and industry dissemination focus. It comprises of 57 contributions. From those 3 are keynotes addressing aspects of ship safety (mainly ship wave loads & stability) [41,42] and environmental efficiency [40]; 32 are peer review publications at well-established international maritime research forums [43-74]. The remaining contributions mainly but not exclusively refer to:

- ◆ theses from my undergraduate and postgraduate degrees that are part of the archives of National British Library (London, UK), the Welsh Library Collection (Cardiff, UK), the Greek National Information System for R&T depository (NISRT, Athens), the Library of the Technical Chamber of Greece as well as the Universities of Swansea and Southampton in the UK [75 – 79].
- ◆ Restricted technical reports from consultancy studies I have carried out while working for Lloyd's Register and British Maritime Technology [80 - 86].
- ◆ Formal design procedures and software manuals on ship loads and marine structures I have developed jointly with colleagues for Lloyd's Register [87 – 90].
- ◆ Training courses on maritime technology, marine hydrodynamics and sloshing loads assessment I have delivered to a wide audience of academics as well as stakeholders of the maritime and offshore engineering industries [91 – 93].
- ◆ Invited presentations delivered at high profile international technology forums, and LR maritime Classification committees held at UK, Asia and the Middle East [94 – 111].

Whereas not formally cited by google scholar most of my research work on "Flexible Fluid Structure Interactions (Hydroelasticity of Ships)" is referenced by the Hydroelasticity in Maritime Technology (HYELAS) series of conferences the proceedings of which I co-edited in 2009 and other affiliated conferences (e.g. Since 2006 I have received more than 30 citations in the synonymous HYELAS Conference Proceedings). The direct impact of my research and development to the maritime industry focuses on ship safety and can be summarized as follows:

- ◆ In 2012 I have contributed to the publication of a paper on passenger ship goal based damaged stability at the United Nations International Maritime Organization (UN IMO) Maritime Safety Committee (MSC) [35]. This is direct output of the work from the EU FP7 WATERBORNE project GOALDS (see "Research Grants" section) and is expected to significantly influence the new generation of goal based damage stability criteria for mega cruise liners under the IMO Safety Of Life at Sea (SOLAS) Maritime Regulatory Instrument amendments. The output of this work has also been discussed at a high profile ship safety panel organized by the European Maritime Safety Agency (EMSA) at Brussels in 2012 (see section on conference organization and chairing activities).
- ◆ In 2011 I have contributed to the publication of a high impact policy and strategy paper disseminated via the EU FP7 high profile project CASMARE (Coordination Action for Sustainable Maritime Research in Europe). This work influenced the EU FP8 Horizon 2020 Program Maritime R&D Calls recently issued by the European Commission for the period between 2016 and 2020 under FP8 Horizon 2020 program [39].
- ◆ From 2004 – date while working for Lloyd's Register I have introduced and contributed to the development of hydroelasticity modelling methods for the evaluation of springing and whipping induced loads experienced by ocean going vessels [82,84,85,87-89]. This work originated during my PhD at the University of Southampton [34]. The frequency domain hydroelastic modelling techniques I introduced then today consist the state of the art approach used by Classification and Shipbuilding industry majors worldwide for the evaluation of springing loads on ocean going ships.

2. List of Publications

2.1 BOOKS

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2. Hirdaris, S.E. (2009) Hydroelastic Modelling – Prediction of Wave Loads on Bulk Carriers, © VDM Verlag Dr. Müller ISBN: 978-3-639-20468-1.
3. Temarel, P. and Hirdaris, S.E. (2009) Proceedings of the 5th International Conference on Hydroelasticity in Marine Technology. Edited by P. Temarel and S.E. Hirdaris, © University of Southampton (UK) ISBN: 978-0-854-32904-5.

2.2. BOOK CHAPTERS

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5. Ringsberg, J., Constantinescu, A., Zamarin, A., van der Sluijs, B., Jang, B.S., Bohlmann, B., Ertekin, B., Chien, H.L., Sidari, M., Økland, O., Lara, P., Miyazaki, S., Hirdaris, S.E., Heggelund, S.E., Wan, Z. (2015) Report of the ISSC Technical Committee II.1 on Quasi Static Response, Proceedings of the 19th International Ship and Offshore Structures Congress (ISSC), Vol. 1, pp. 141-207, C. Guedes Soares and Y. Garbatov Eds., © Taylor Francis Ltd. (CRC Press), UK, ISBN 10 : 1138028959.
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8. Hirdaris, S.E., Argyriadis, K., Bai, W., Davydov, I., Derbanne, Q., Dessi, D., Ergin, A., Fonseca, N., Gu, X., Hermundstad, O.A., Huijmsmans, R., Iijima, K., Nielsen, U.D., Papanikolaou, A., Parunov, J., Petrie, G., Yu, S.B. (2012) Report of the ISSC Technical Committee I.2 on Loads, Proceedings of the 18th International Ship and offshore Structures Congress (ISSC), Vol. 1, pp. 79-150, W. Fricke and R. Bonsart (Eds.), © Schiffbautechnische Gesellschaft, Hamburg, Germany, ISBN 978-3-87700-131-{5,8}.
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