May 31, 2017

Curriculum Vitae of Dr. Madjid Karimirad

Contents

Abstract

Dr Madjid Karimirad is Senior Lecturer (associate professor) in Marine and Coastal Engineering in the School of Natural and Built Environment, Queen's University Belfast (QUB), United Kingdom (UK) since March 2017. Prior to joining QUB, he was a Scientist in MARINTEK (Norwegian Marine Technology Research Institute) and SINTEF Ocean, Trondheim, Norway. Dr Karimirad has been researching in the field of marine structures and offshore technology with more than 10 years of work and research experiences. He has a strong background in academia and industry; this covers Post-Doctoral and PhD research along with, working expertise and competencies in offshore technology. Dr Karimirad was awarded his PhD in 2011 in marine structures from Norwegian University of Science and Technology (NTNU). He had been employed by CeSOS (Center for Ships and Ocean Structure), a Center of Excellence (CoE) in Norway. Dr Karimirad has served as a Post-Doctoral academic staff in CeSOS; and, his Post-Doctoral was part of NOWITECH (Norwegian Research Center for Offshore Wind Technology) program. Dr Karimirad obtained his MSc (2007) in mechanical engineering/ships structures from Sharif University of Technology as well as his BSc (2005) in mechanical/marine engineering. In addition, he has worked in industry as Senior-engineer during his career in Aker-Kvaerner EPCI company. Offshore renewable energy (ORE) structures and oil/gas technologies are among his interests, and, he has carried out different projects focusing on these issues during the past years. Dr Karimirad has served as editor and reviewer in several international journals and conferences; also, he has been appointed as topic and session organizer of International Conference on Ocean, Offshore & Arctic Engineering (OMAE). His knowledge covers several aspects of offshore mechanics, hydrodynamics and structural engineering. The carried out work and research results have been published in several technical reports, theses, book chapters, book, journal scientific papers and conference proceedings.

Interests and Expertise

Offshore structures, Wind technology, Marine structures, Oil and Gas industry, Renewable Energy

- *Structural dynamics*
- *Stochastic nonlinear phenomena*
- *Dynamic loads and responses*
- *Offshore mechanics*
- *Oil and Gas offshore platforms*
- *Marine engineering (including wave energy converters and tidal turbines)*
- *Offshore Wind engineering*

Personal Information

Date of Birth: June 14, 1982
Residence: Norway (2007-2017) and UK (since March 2017)
Citizenship: Dual, Iranian and Norwegian
Marital Status: Married
Children: One daughter (born 2009)

Contact information

Work: School of Natural and Built Environment, Queen's University Belfast (QUB), UK
http://www.qub.ac.uk/
Email: madjid.karimirad@qub.ac.uk

Marine and Coastal Engineering, CIVIL Eng.,
David Keir Building, Stranmillis Road, Belfast, BT9 5AG, United Kingdom
Tel: (+44) 028 90 97 4045

Home: Apt F, 2 University Street, Belfast BT7 1FZ, Northern Ireland, United Kingdom
Mobile: (+44) 07871951856
Email: madjidkarimirad@gmail.com

Position (Affiliation)

Senior Lecturer (associate professor) in Marine and Coastal Engineering, Civil engineering, the School of Natural and Built Environment, Queen's University Belfast (QUB), Northern Ireland, United Kingdom

http://pure.qub.ac.uk/portal/en/persons/madjid-karimirad(c2da6ed5-0eaf-4471-989b-1cc85d883542).html

http://www.qub.ac.uk/research-centres/cerc/ResearchGroups/MarineResearchGroup/OurPeople/DrMadjidKarimirad/

Academia and Education

A) January.2011---August.2012 (20 months): Post-Doctoral, CeSOS and NOWITECH, Norwegian University of Science and Technology (NTNU), Norway

Centre of excellence

Post-Doctoral topic: "**Alternative offshore wind turbines for moderate water depths**"

B) 2007---2011 (41 months): Ph.D. at NTNU/CeSOS, Norway (Marine Structures)
March 1st 2011, defended Doctoral thesis with trial-lecture: "Marine Operations Related to Installations of Offshore Wind Turbines". Doctoral committee members were:

- Prof. Nigel Barltrop (Research Director, Strathclyde-Glasgow, UK)
- Prof. Finn Gunnar Nielsen (Chief Researcher, Statoil, Norway)
- Prof. Jørgen Amdahl (professor, NTNU, Trondheim, Norway)

Ph.D. thesis topic: **"Stochastic Dynamic Response Analysis of Spar-Type Wind Turbines with Catenary or Taut Mooring Systems"**

ISBN 978-82-471-2527-4 Electronic

ISBN 978-82-471-2526-7 Printed

Supervised by: ***Professor Torgeir Moan***, Director of centre for ships and ocean structures, CeSOS/NTNU; also, Chief-Editor of the Marine Structures Journal

Ph.D. courses at NTNU, ***Grade A***

Course title	Professor
Methodology, Theory of Science and Ethics	Torgeir Moan
Finite Element Method	Kjell M. Mathisen; Torgeir Moan
Sea Loads	Walter Lian
Stochastic Theory of Sea loads	Walter Lian; Sverre K. Haver
Dynamic Response of Marine Structures	Carl M. Larsen
Advanced Topics in Structural Modelling and Analysis	Torgeir Moan
Stochastic Methods Applied in the Analysis of Marine Structures	Torgeir Moan; Arvid Næss; Carl Trygve Stansberg; Bernt J. Leira
Hydrodynamic Aspect for Marine Structures	Odd M. Faltinsen

C) 2005---2007: Sharif University of Technology, Tehran, Iran
M.Sc. in Mechanical Engineering/Marine Structures
(Top Student)

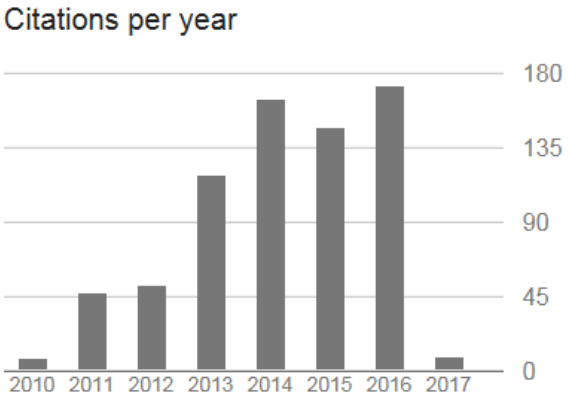
D) 2000---2005: Sharif University of Technology, Tehran, Iran
B.Sc. in Mechanical Engineering/Marine Engineering

Previous Membership

Tekna (https://www.tekna.no/en); "Norwegian Society of Graduate Technical and Scientific Professionals"; Tekna is part of "The Federation of Norwegian Professional Associations" and "the Scandinavian association of engineering organizations".

Citation indices

60 publications in total:
Citations 767
h-index 17
i10-index 21
http://scholar.google.no/citations?user=arcoCuoAAAAJ&hl=en



Research Gate link:
https://www.researchgate.net/profile/Madjid_Karimirad

Patent

Combined wind turbine and wave energy convertor (focus on the synergy effects)
Patent application number: GB 1204415.2
List of Inventors: Torgeir Moan; Made Jaya Muliawan; Madjid Karimirad; Zhen Gao
https://www.google.com/patents/WO2013137744A1?cl=en&dq=madjid+karimirad&hl=en&sa=X&ei=-OCAVJSTHcjiywOV7YGgAg&ved=0CB0Q6AEwAA

This is an international patent dealing with a combined wave and wind energy device. The patent includes an offshore spar wind turbine and a torus heaving buoy wave energy device, so called, STC platform (Spar-Torus combination). The patent emphasized on synergy effects combining the wave and wind power in one unit. However, other aspects such as dynamic responses, structural integrity and reliability through limit states are among other issues. The introduced concept is included in case studies for EU-project, Marina Platform. http://www.marina-platform.info/

The concept is granted the model tests in laboratories by EU, Marinet facilities.
http://www.fp7-marinet.eu/

Editorial Review

- Journal of Offshore Mechanics and Arctic Engineering
- Journal of Marine Structures
- Ocean Engineering Journal
- International Conference on Ocean, Offshore and Arctic Engineering, OMAE conference
- ISOPE, the International Society of Offshore and Polar Engineers
- IEEE Transactions on Control Systems Technology
- Journal of Mechanical Science and Technology
- International Journal of Maritime Technology
- Marine Industries Conference (www.miciran.ir)
- Wind and Structures, An International Journal (techno-press)
- Iranian Journal of Science and Technology (Mechanical Engineering) by Springer
- TORQUE, “The Science of Making Torque from Wind” conference

- American Institute of Physics (AIP), Journal of Renewable and Sustainable Energy
- Journal of Applied Ocean Research

The reviews are performed upon official requests from international journals and conferences.

Past Editorial Board Member

A) Journal of Shipping and Ocean Engineering", David Publishing Company, USA
http://www.davidpublishing.org/davidpublishing/journals/J6/ship2011/oceam2011/395.html

Editorial Board Member

B) International Journal of Coastal and Offshore Engineering
http://www.ijcoe.org/page.php?slct_pg_id=13&sid=1&slc_lang=en

Topic and Session organizer

C) International Conference on Ocean, Offshore and Arctic Engineering, OMAE2017
SYMP 9 Ocean Renewable Energy
- 9-2 Wind Energy – Analysis & Operation (9-2-6 Fatigue)
- 9-8 Ocean Renewable Energy – thermal, hybrid and other forms

Teaching aspects

Dr Karimirad is willing to teach BSc, MSc and PhD courses needed at the department based on his background. He has some experiences of teaching mentioned in this resume and also he has participated in a teacher training course and got a certificate:

Faculty of Social Sciences and Technology Management
Programme for Teacher Education, Educational Development Service
Teacher's Training Seminar for PhD Students and Post-doctoral Research Fellows at NTNU
May 2009-June 2010

Supervising Research Students, 4 April 2017,
Queen's University Belfast, United Kingdom
Prof. John Wakeford

Small Group Teaching (404009_TLHE_SGT)
Date: 3 May 2017
Venue: Queen's University Belfast
Tutor: Dr C Dewhirst

Using Socrative to Encourage Student Engagement
Dr Paul Wilson, School of Psychology, Queen's University Belfast
8th May 2017

Invited lecturer:
Wind Lectures for the MSc course at NTNU called "Energy and Environmental Physics", TFY4300, September-October 2015

Invited lecturer:
MSc on Ocean Energy, Tidal Energy Module, Queens University Belfast 10th – 13th April 2017

Opponent and evaluator

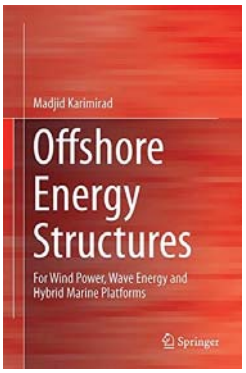
- Served as opponent of serval MSc theses carried out at the Norwegian University of Science and Technology (NTNU), with a contract for the period of 2014-2017. The evaluations have been performed based on Norwegian academia requirements and regulations.
  NTNU's Grading and Credit System: https://www.ntnu.edu/studies/grading

- Served as evaluator of research proposals and participated in the assessment committee:
  http://www.regionaleforskningsfond.no

  This includes evaluating the research proposals competing for getting national funding considering different criteria such as the following:

  - Regional relevance and contribution to restructuring
  - Potential and level of innovation
  - Research content
  - Project quality
  - Implementation capacity
  - Continuation and utilization of results

Publications

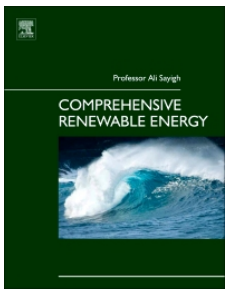


Book

1. Karimirad M. (2014), **Offshore Energy Structures**, Springer
   ISBN 978-3-319-12174-1
   2014, XI, 301 pages. 111 illus., 106 illus. in color.
   http://www.springer.com/energy/renewable+and+green+energy/book/978-3-319-12174-1

Book chapter

2. Karimirad M. (2012) **Mechanical-Dynamic Loads**. *Book Chapter*, Wind Energy Technology, In: Sayigh A, (ed.) Comprehensive Renewable Energy, Vol 2, pp. 243–268. Oxford: Elsevier.
   http://store.elsevier.com/product.jsp?isbn=9780080878720
   https://www.elsevier.com/books/comprehensive-renewable-energy/sayigh/978-0-08-087872-0



Technical reports

During the past decade, Dr Karimirad has written more than 50 reports for internal, external, national and international projects. This includes both industrial and academic activities.

Papers

2017

3. Madjid Karimirad and Constantine Michailides, "**Fault Conditions Effects on the Dynamics of a V-shaped Semisubmersible Floating Offshore Wind Turbine**", to be submitted soon. *(Journal Paper 22)*

4. Shabnam Bahramiasl, Madjid Abbaspour, Madjid Karimirad, "**Experimental study on gyroscopic effect of rotating rotor and wind heading angle on floating wind turbine responses**", submitted to International Journal of Environmental Science and Technology, Springer, ISSN: 1735-1472 (print version), ISSN: 1735-2630 (electronic version), 2017 *(Journal Paper 21)*

5. Madjid Karimirad and Constantine Michailides, "**Effects of structural design parameters on the hydrodynamic interaction and response of the combined WindWEC concept**", 12th European Wave and Tidal Energy Conference 2017, EWTEC2017, 27th August to 1st September 2017, Cork, Ireland

6. Madjid Karimirad and Nikolaos Lampropoulos, "**Cross Comparison of Two Analysis Tools for a Braceless Semi-Submersible Wind Turbine Versus Ocean Basin Test Results**", Poster presentation, Offshore Wind Energy Conference, Wind Europe, June 6-8, 2017, London, UK

7. Madjid Karimirad, Erin E. Bachynski, Petter Andreas Berthelsen, Harald Ormberg, "**COMPARISON OF REAL-TIME HYBRID MODEL TESTING OF A BRACELESS SEMISUBMERSIBLE WIND TURBINE AND NUMERICAL SIMULATIONS**", OMAE2017, Proceedings of the ASME 2016 36th International Conference on Ocean, Offshore and Arctic Engineering, June 25-30, 2017, Trondheim, Norway, OMAE2017-61121

8. Virgile Delhaye, Madjid Karimirad, Petter Andreas Berthelsen, "**Effect of the Beam Element Geometric Formulation on the Wind Turbine Performance and Structural Dynamics**", OMAE2017, Proceedings of the ASME 2016 36th International Conference on Ocean, Offshore and Arctic Engineering, June 25-30, 2017, Trondheim, Norway, OMAE2017- 61779

9. Madjid Karimirad and Erin E. Bachynski, "**Sensitivity Analysis of Limited Actuation for Real-time Hybrid Model Testing of 5MW Bottom-fixed Offshore Wind Turbine**", DeepWind EERA conference, February 2017, Trondheim, Norway, will be published by Journal of Energy Procedia, Elsevier, Energy Procedia *(Journal Paper 20)*

10. Wei Shi, Ice modelling, under development

2016

11. Madjid Karimirad and Kourosh Koushan, "**WindWEC: Combining Wind and Wave Energy Inspired by Hywind and Wavestar**", International Conference on Renewable Energy Research and Applications, IEEE, ICRERA2016, Birmingham, UK, November 2016

12. Madjid Karimirad and Constantine Michailides, "**V-shaped Semisubmersible Offshore Wind Turbine Subjected to Misaligned Wave and Wind**", American Institute of Physics (AIP), Journal of Renewable and Sustainable Energy 8, 023305 (2016); doi: 10.1063/1.4944964 *(Journal Paper 19)*

13. Guomin Ji, Madjid Karimirad, Frank Klæbo, Per-Christian Irgens, "**INTEGRITY ASSESSMENT OF HOT BOLTING TOOL**", OMAE2016, Proceedings of the ASME 2016 35th International Conference on Ocean, Offshore and Arctic Engineering, June 19 - 24, 2016, Busan, South Korea, OMAE2016-54652

14. Petter Andreas Berthelsen, Erin E. Bachynski, Madjid Karimirad, Maxime Thys, "**REAL-TIME HYBRID MODEL TESTS OF A BRACELESS SEMI-SUBMERSIBLE WIND TURBINE. PART III: CALIBRATION OF A NUMERICAL MODEL**", OMAE2016, Proceedings of the ASME 2016 35th International Conference on Ocean, Offshore and Arctic Engineering, June 19 - 24, 2016, Busan, South Korea, OMAE2016-54640

2015

15. Madjid Karimirad and Constantine Michailides, "**V-shaped Semisubmersible Offshore Wind Turbine: an alternative concept for offshore wind technology**", Journal of Renewable Energy, Elsevier Ltd. (2015), Renewable Energy 83 (2015) 126-143
DOI: 10.1016/j.renene.2015.04.033
(Journal Paper 18)
http://www.sciencedirect.com/science/article/pii/S0960148115003134

16. Constantine Michailides and Madjid Karimirad, "**Mooring System Design and Classification of an Innovative Offshore Wind Turbine in Different Water Depths**", Journal of Recent Patents on Engineering, Bentham Science, Volume 9, 2 Issues, 2015
DOI: 10.2174/1872212109666150331224714
(Journal Paper 17)
http://benthamscience.com/journal/abstracts.php?journalID=rpeng&articleID=129929
ISSN: 2212-4047 (Online); ISSN: 1872-2121 (Print)

17. Karimirad M., Koushan K., Weller S., Hardwick J. and Johanning L., "**Applicability of offshore mooring and foundation technologies for marine renewable energy (MRE) device arrays**", Renewable Energies Offshore – Guedes Soares (Ed.), © 2015 Taylor & Francis Group, London, ISBN: 978-1-138-02871-5, pp 905-912, 2015 (connected to RENEW2014 conference, see below)
(Journal Paper 16)
https://www.crcpress.com/Renewable-Energies-Offshore/Soares/9781138028715

18. Madjid Karimirad and Constantine Michailides, "**Dynamic Analysis of a Braceless Semisubmersible Offshore Wind Turbine in Operational Conditions**", DeepWind EERA conference, February 2015, Trondheim, Norway, published by Journal of Energy Procedia, Elsevier, Energy Procedia 80C (2015) pp. 21-29, DOI: 10.1016/j.egypro.2015.11.402
(Journal Paper 15)
http://www.sciencedirect.com/science/article/pii/S1876610215021347

19. Bhinder M. A., Karimirad M., Weller S., Debruyne Y., Guerinel M. and Sheng W., "**Modelling mooring line nonlinearities (material and geometric effects) for a wave energy converter using AQWA, SIMA and Orcaflex**", European Wave and Tidal Energy Conference, EWTEC2015, Nantes, France, 6-11 September 2015
https://www.researchgate.net/publication/282574165_Modelling_mooring_line_non-linearities_%28material_and_geometric_effects%29_for_a_wave_energy_converter_using_AQWA_SIMA_and_Orcaflex

2014

20. Karimirad M., Koushan K., Weller S., Hardwick J. and Johanning L., "**Applicability of offshore mooring and foundation technologies for marine renewable energy (MRE) device arrays**", Renew2014, International Conference on Renewable Energies Offshore, 24 - 26 November 2014, Lisbon, Portugal http://www.centec.tecnico.ulisboa.pt/renew2014/ http://www.dtocean.eu/content/download/24063/165875/file/20150114_RENEW2014_madjid%20karimirad_final.pdf

21. Yihan Xing, Madjid Karimirad, Torgeir Moan**,** "**Modelling and analysis of floating spar-type wind turbine drivetrain**", Journal of Wind Energy (Wiley), 2013, DOI: 10.1002/we.1590, Wind Energy, Volume 17, Issue 4, pages 565–587, April 2014
(Journal Paper 14)
http://onlinelibrary.wiley.com/doi/10.1002/we.1590/abstract

22. ZY Jiang, M Karimirad, T Moan, **"Dynamic response analysis of wind turbines under blade pitch system fault, grid loss and shut down events",** Journal of Wind Energy (Wiley), Manuscript ID WE-12-0194, DOI: 10.1002/we.1639, Wind Energy, Volume 17, Issue 9, pages 1385–1409, September 2014
(Journal Paper 13)
http://onlinelibrary.wiley.com/doi/10.1002/we.1639/abstract

2013

23. Karimirad M. and Moan T., "**Stochastic Dynamic Response Analysis of a Tension Leg Spar-Type Offshore Wind Turbine**", Journal of Wind Energy (Wiley), Wind Energ. (2012) © 2012 John Wiley & Sons, Ltd. DOI: 10.1002/we, Wind Energy, Volume 16, Issue 6, pages 953–973, September 2013
(Journal Paper 12)
http://onlinelibrary.wiley.com/doi/10.1002/we.1537/pdf

24. Made Jaya Muliawan, Madjid Karimirad, Zhen Gao and Torgeir Moan, **"Extreme Responses of a Combined Spar-type Floating Wind Turbine and Floating Wave Energy Converter (STC) System with Survival Modes"**, Journal of Ocean Engineering, OE-S-12-005191, Ocean Engineering 65 (2013) 71–82
(Journal Paper 11)
http://www.sciencedirect.com/science/article/pii/S002980181300111X

25. ZY Jiang, M Karimirad, T Moan, "**Response analysis of a parked spar-type wind turbine considering blade pitch mechanism fault",** International Journal of Offshore and Polar Engineering, (ISSN 1053-5381), Vol. 23, No. 2, June 2013, pp. 120–128
(Journal Paper 10)
http://www.isope.org/publications/journals/ijope-23-2/abst-23-2-p120-il47.pdf

26. ZY Jiang, T Moan, Z Gao, M Karimirad, "**Effect of shut-down strategies on the dynamic responses of a spar-type floating wind turbine**", OMAE2013, ASME 2013 32nd International Conference on Ocean, Offshore and Arctic Engineering, OMAE2013-10214, Nantes, France, 2013
http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleID=1786700

27. Karimirad M., "**Modeling Aspects of a Floating Wind Turbine for Coupled Wave-wind-induced Dynamic Analyses**", Journal of Renewable Energy, DOI: 10.1016/j.renene.2012.12.006, Renewable Energy 53 (2013) 299-305
(Journal Paper 9)
http://www.sciencedirect.com/science/article/pii/S0960148112007616

28. Made Jaya Muliawan, Madjid Karimirad, Torgeir Moan, "**Dynamic Response and Power Performance of a Combined Spar-type Floating Wind Turbine and Coaxial Floating Wave Energy Converter**", Journal of Renewable Energy; Renewable Energy, Volume 50, February 2013, Pages 47-57
(Journal Paper 8)
http://www.sciencedirect.com/science/article/pii/S0960148112003527

29. Yihan Xing, Torgeir Moan, Madjid Karimirad, Mahmoud Etemaddar**,** "**Influence of the design parameters of a spar-type floating wind turbine on component loads, with emphasis on the drivetrain**", 15 April 2013, in the doctoral thesis of Dr Yihan Xing with the title of "Modelling and analysis of the gearbox in a floating spar-type wind turbine" published by NTNU, 2013
http://www.simpack.com/fileadmin/simpack/doc/newsletter/2013/Jul_2013/SN-1-Jul-2013_NTNU_Wind-Turbine_Drivtrain_CeSOS.pdf

2012

30. Karimirad M. and Moan T., "**A simplified method for coupled analysis of floating offshore wind turbines**", Journal of Marine Structures 27 (2012), pp. 45-63, DOI information: 10.1016/j.marstruc.2012.03.003
(Journal Paper 7)
Most cited articles, http://www.journals.elsevier.com/marine-structures/most-read-articles/

31. Karimirad M. and Moan T., "**Wave and Wind Induced Dynamic Response of Catenary Moored Spar Wind Turbine**", Journal of Waterway, Port, Coastal, and Ocean Engineering 2012, Vol. 138, Issue 1, pages 9-20, ASCE doi:10.1061/(ASCE)WW.1943-5460.0000087
(Journal Paper 6)
2011 Top Downloads: http://ascelibrary.org/wwo/

32. Karimirad M. and Moan T., "**Extreme Dynamic Structural Response Analysis of Catenary Moored Spar Wind Turbine in Harsh Environmental Conditions**", Journal of Offshore Mechanics and Arctic Engineering (JOMAE), Vol. 133, iss. 4, 041103-1, 2012, ASME doi:10.1115/1.4003393
(Journal Paper 5)
Most Downloaded Articles, http://scitation.aip.org/journals/doc/ASMEDL-home/most_downloaded.jsp?KEY=JMOEEX&Year=2011&Month=6&agg=md

33. T Moan, Z Gao, M Karimirad, E E Bachynski, M Etemaddar, Z Jiang, M I Kvittem, M. Muliawan, Y Xing, "**RECENT DEVELOPMENTS OF THE DESIGN AND ANALYSIS OF FLOATING WIND TURBINES**", The Royal Institution of Naval Architects (RINA), ICSOT 2012: International Conference Ship & Offshore Technology 2012, DEVELOPMENTS IN FIXED & FLOATING OFFSHORE STRUCTURES, 23-24 MAY 2012, Busan, South KOREA
http://www.gbv.de/dms/tib-ub-hannover/717394794.pdf

34. Karimirad M. and Moan T., "**Comparative Study of Spar-Type Wind Turbines in Deep and Moderate Water Depths**", the 31st International Conference on Ocean, Offshore and Arctic Engineering, OMAE2012 conference, OMAE2012-83559, Published by ASME, 1-6 July, Brazil
http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1732864

35. Karimirad M. and Moan T., "**Feasibility of the Application of a Spar-type Wind Turbine at a Moderate Water Depth**", DeepWind conference, 19-20 January 2012, Trondheim, Norway, published by Journal of Energy Procedia, Elsevier, Energy Procedia 24 (2012) 340 – 350

http://www.sciencedirect.com/science/article/pii/S1876610212011575
(Journal Paper 4)

36. Yihan Xing, Madjid Karimirad, Torgeir Moan**,** "**EFFECT OF SPAR-TYPE FLOATING WIND TURBINE NACELLE MOTIONS ON DRIVETRAIN DYNAMICS**", DE-RISKING OFFSHORE WIND TURBINE DESIGN, Scientific proceedings of the European Wind Energy Conference (EWEA2012), 16-19 April 2012, Copenhagen, Denmark
http://proceedings.ewea.org/annual2012/allfiles2/936_EWEA2012presentation.pdf

37. ZY Jiang, M Karimirad, T Moan, "**Response Analysis of a Parked Spar-Type Wind Turbine under Different Environmental Conditions and Blade Pitch Mechanism Fault**", The Twenty-second (2012) International Offshore and Polar Engineering Conference, ISOPE, June 17−22, Rhodes (Rodos), Greece

38. Made Jaya Muliawan, Madjid Karimirad, Torgeir Moan and Zhen Gao, "**STC (SPAR-TORUS COMBINATION): A COMBINED SPAR-TYPE FLOATING WIND TURBINE AND LARGE POINT ABSORBER FLOATING WAVE ENERGY CONVERTER – PROMISING AND CHALLENGING**", the 31st International Conference on Ocean, Offshore and Arctic Engineering, OMAE2012 conference, Published by ASME, 1-6 July, Brazil
http://www.cesos.ntnu.no/attachments/078_S12_Made%20J.%20Muliawan.pdf

2011

39. Karimirad M. and Moan T., "**Tension Leg Spar-Type Offshore Wind Turbine with Upwind or Downwind Rotor Configuration**", Oral presentation and publication at the proceedings of the AWEA-WINDPOWER2011 conference, May 2011, Anaheim, CA, USA
Delivering Competitive Energy Costs from Offshore Wind Power (Scientific)
Session Code 163
http://s3.goeshow.com/awea/annual/2011/handouts_monday.cfm

40. Karimirad M., Meissonnier Q., Gao Z. and Moan T., "**Hydro-elastic Code-to-Code Comparison for a Tension Leg Spar Type Floating Wind Turbine**", Journal of Marine Structures, Volume 24, Issue 4, October 2011, Pages 412-435 doi:10.1016/j.marstruc.2011.05.006
(Journal Paper 3)
Most cited articles, http://www.journals.elsevier.com/marine-structures/most-cited-articles/

41. Karimirad M. and Moan T., "**Ameliorating the Negative Damping in the Dynamic Responses of a Tension Leg Spar-Type Support Structure with a Downwind Turbine**", Scientific proceedings of the European Wind Energy Conference (EWEC2011), March 2011, Brussels, Belgium
http://www.sari-energy.org/PageFiles/What_We_Do/activities/EWEC_2011_Brussels/Presentations/Scientifics579.pdf

2010

42. Karimirad M. and Moan T., "**Extreme Structural Dynamic Response of a Spar Type Wind Turbine**", ASME 2010 29th International Conference on Ocean, Offshore and Arctic Engineering, Paper No. OMAE2010-20044, China, June 2010
https://www.sintef.no/project/Nowitech/Posters%20PhDs/Poster_Madjid%20Karimirad.pdf

43. Karimirad M. and Moan T., "**Effect of Aerodynamic and Hydrodynamic Damping on Dynamic Response of Spar Type Floating Wind Turbine**", Proceedings of the EWEC2010, European Wind Energy Conference 20-23 April 2010, Warsaw, Poland, April 2010

http://proceedings.ewea.org/ewec2010/allfiles2/7_EWEC2010presentation.pdf

44. Jonkman J., …, Karimirad M. …, "**Offshore Code Comparison Collaboration within IEA Wind Task 23:Phase IV Results Regarding Floating Wind Turbine Modeling**", 2010 European Wind Energy Conference (EWEC) 20-23 April 2010, Warsaw, Poland, April 2010 http://www.nrel.gov/wind/pdfs/47534.pdf

45. Karimirad M., "**Dynamic Response of Floating Wind Turbine**'', Journal of ScientiaIranica, Sharif University of Technology, April 2010, Transaction B: Mechanical Engineering, Vol. 17. http://www.scientiairanica.com/PDF/Articles/00001260/karimirad.pdf *(Journal Paper 2)*

2009

46. Karimirad M., Gao Z. and Moan T., "**Dynamic Motion Analysis of Catenary Moored Spar Wind Turbine In Extreme Environmental Condition**'', Offshore Wind Conference 2009, Stockholm, Sweden, September 2009 http://proceedings.ewea.org/offshore2009/allfiles2/39_EOW2009presentation.pdf

47. Karimirad M. and Moan T., "**Wave and Wind Induced Motion Response of Catenary Moored Spar Wind Turbine**'', Computational Methods in Marine Engineering Conference, Norway, June 2009 (Published by CIMNE, Spain) http://congress.cimne.com/marine09/frontal/ProgTodo.asp

48. Karimirad. M., Seif. M. S. and M. Behzad, "**Estimating the Error of Wave Maker Flume**", 11th Conference of Marine Industries, Tehran, Iran, 2009

2008

49. Karimirad. M., Asadian. M and Seif. M. S., **"Motions of the Model of a Barge in Wave Maker Flume"**, 10th Conference of Marine Industries, Tehran, Iran, 2008

2007

50. Karimirad. M., Askari. M and Seif. M. S., **"Investigation of scale effect correction factor in ship resistance model test"**, Journal of science and technology, Sharif University of Technology, ISSN 10248-7167, No. 40.2, page 171-176 and 196-197 *(Journal Paper 1)*

51. Karimirad. M. and Mazaheri. S, **"Design of SBMs in Persian Gulf ",** Second Offshore Conference, Tehran, Iran, 2007

2006

52. Karimirad. M. and Ghasemi. M., **"MSc. Examination Collection, Mechanical Engineering",** *Published-Book*, Tehran, Iran, 2006

53. Karimirad. M., Askari. M and Seif. M. S., **"Estimating Accuracy of Model Test in Towing Tank"**, 7th Conference of Marine Industries, Paper No. 102-76, Tehran, Iran, 2006

54. Roostami. M., Karimirad. M., Moosavirad. S. M., and Seif. M. S., **"Evaluating Influence of Slamming Force at Dynamical Response of Ship Structure"**, 7th Conference of Marine Industries, Paper No. 102-84, Tehran, Iran, 2006

Theses

1) PHD: **"Stochastic Dynamic Response Analysis of Spar-Type Wind Turbines with Catenary or Taut Mooring Systems"**, NTNU
2) MSC: **"Designing of Out-door Seakeeping Test System"**, Sharif U. of Tech.
3) BSC: **"Design of 35000 DWT Product Carrier's Propulsion System"**, Sharif U. of Tech**.**

Advisor and Co-supervision

Main Supervisor for all cases: Prof. Torgeir Moan

Involved in advising 3 PhDs at NTNU:

- Dr Yihan Xing (Drivetrain of wind turbines);
- Dr Made Jaya Muliawan (Combined wave and wind energy devices);
- Dr Zhiyue Jiang (Faults and transient events for wind turbines);

Involved in supervising 4 MSc students at NTNU:

1)
   a. MSc project thesis (Autumn 2011)
   MSc-Student-Tech. Inge Moy, "Dynamic Response Analysis of a Spar-type Wind Turbine in Moderate Water Depth", Dynamisk analyse av en vindturbin i moderate vanndyp

   b. M.Sc. Thesis in Marine Technology (Spring 2012)
   MSc-Student-Tech. Inge Moy, "Parameter Sensitivity of Short-term Fatigue Damage of Spar-type Wind Turbine Tower"
   Parameter sensitivitet av korttids utmattingskade av spar-type vindturbintårn

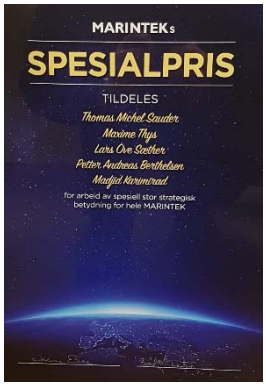
2) MSC thesis in marine technology (Spring 2011)
   Stud.Tech. Thomas Solberg
   Dynamic Response Analysis of a Spar type Floating Wind Turbine
   (Dynamisk responsanalyse av en flytendevindturbin av Spar type)

3) MSC thesis in marine technology (Spring 2011)
   Stud.Tech. Jon Erik Lønøy Lygren
   Dynamic Response Analysis of a Tension Leg Floating Wind Turbine

4) MSC thesis in marine technology (Spring 2011)
   Stud.Tech. CHENYU LUAN
   Dynamic Response Analysis of a Semi-Submersible Floating Wind Turbine

* Moreover, several MSc and PhD students from different Iranian universities have been advised by Dr Karimirad during the past years.

Awards and Honors



1. Special award for strategic project "ReaTHM®", MARINTEK
2. Granted Post-Doctoral Fellowship, CeSOS and NOWITECH, NTNU, Norway
3. Granted Ph.D. Fellowship, CeSOS, NTNU, Norway (Centre of **Excellence)**
4. Top Student, M.Sc. Mechanical Engineering/Ship Structure, Sharif University of Tech.

Work and Research Experiences

Since March 2017, Senior Lecturer (associate professor) in Marine and Coastal Engineering in the School of Natural and Built Environment, Queen's University Belfast (QUB), Northern Ireland, United Kingdom
http://www.qub.ac.uk/

August 2013---March 2017, Research Scientist, MARINTEK, Norway
http://www.sintef.no/home/MARINTEK/
Structural engineering department, Energy and oil research, technical and scientific projects

Responsibilities & Tasks:

Managing projects, Quality assurance, Coordinating tasks, Networking and Applying for fund

Technical and scientific aspects:

- Structural analyses
- Component analyses
- Advanced hydrodynamic analyses
- Computer aided design
- FEM analyses of fixed and floating platforms
- Linear and non-linear structural analyses of modules
- Method development including design
- Contact with clients, class society, contractors and other specialist environments

I. Hotbolting project (Client: Statoil)
Autumn 2013---Winter 2013

Hot-Bolting is the practice of removing/replacing or freeing and re-tightening bolts on live piping and equipment.

- Finite element analyses of mechanical components including contact FEA
- ABAQUS as main FEM simulation software for linear/nonlinear finite element modeling/analysis
- Bolt connections for offshore piping
- Gasket/flange nonlinear contact problems

- Sequential loading such as: clamping, pressurizing, bolting and de-bolting
- ASME standard for pipe flanges

Technical reports have been written and submitted to Statoil as client of the project for review. The revised reports are accepted by the clients. Due to confidentiality the publications are not available for public.

II. ReaTHM®, Hybrid testing of Semi-submersible offshore wind turbine in ocean basin of MARINTEK (Client: Nowitech/NTNU)

Winter 2013---Winter 2016

- Codes used: Genie, Multisurf, Wamit, Wadam, HydroD, Simo, Riflex, Aerodyn, Sima, Abaqus, Matlab, DeepC (these codes are used directly or indirectly to make inputs for the other codes) For examples:
  - Simo-Riflex-Aerodyn is used for aero-servo-hydro-elastic numerical simulations
  - ABAQUS used for Eigen-mod analyses and elastic response studies
  - WAMIT used for frequency domain analysis (hydrodynamic properties such as excitation forces)
  - SIMA is used for running Simo-Riflex simulations and reporting of the results
- Specification of a semisubmersible wind turbine for testing in ocean basin of MARINTEK
- Wave and wind induced dynamic analysis of semisubmersible floating wind turbine for comparison with experimental results
- Aero-hydro-servo-elastic simulations and calibration of numerical model versus test results

http://sintef.org/home/publications/publication/?pubid=CRIStin+1178775

III. DTOcean (European project, Client: EU)

Spring 2014---Autumn 2016

http://www.dtocean.eu/DTOcean-project

MARINTEK is a partner in the project DTOcean (Optimal Design Tools for Ocean Energy Arrays), which is a European collaborative project funded by the European Commission under the 7th Framework Programme, (http://www.dtocean.eu/). DTOcean is led by the University of Edinburgh and has 18 partners from several European countries.

MARINTEK's main contribution so far has focused on the applicability of offshore mooring and foundation technologies for MRE device arrays. MARINTEK has employed state-of-the-art in-house mooring and foundation software for analysis of the arrays of MRE devices. These software packages have long been successfully employed in the offshore petroleum sector. Scientific results are published through reports and conference proceedings.
http://www.sintef.no/home/marintek/projects/ocean-energy/dtocean-eu-project-optimal-design-tools-for-ocean-energy-arrays/

SIMA and SIMO-RIFLEX are the main codes which MARINTEK is using for simulations of marine renewable energy devices in this project. Several technical reports have been written during the projects and MARINTEK had contributions by performing analyses, writing, reviewing and providing data.

http://www.dtocean.eu/content/download/24792/170418/file/DTO_WP4_EDC_D4.5.pdf

IV. Julia (Client: ExxonMobil)

Spring 2014

VIV fatigue analysis for Julia project. Shear7 (developed in MIT) is applied to investigate the fatigue life of the umbilical. Almost 1000 current load cases have been applied; both out-of-plane and in-plane structural response analysis has been considered. Riflex is used to perform eigenvalue analysis to extract 500 modes. MATLAB scripting has been implemented for pre- and post-processing. VIVANA software is a cross check for the results.
http://exxonmobil.newshq.businesswire.com/press-release/exxonmobil-develop-julia-oil-field-gulf-mexico

V. IRPwind (Client: EU)

Winter 2014---Spring 2017
Responsibility: Project manager

The IRPWIND comprises 24 partners, who are all European research institutions and universities working in the area of wind energy research. All partners are part of the European Energy Research Alliance (EERA) Joint Programme on Wind Energy, except for The European Wind Energy Association (EWEA). The IRPWIND project and the EERA JP Wind are highly interlinked in its partners, objectives, strategy and organization. In short the EERA JP Wind has been working for 4 years on voluntary basis, but with the IRPWIND project the European Commission has made it possible to accelerate the collaboration and ambitions in order to form a European Integrated Programme on Wind Energy Research.

http://www.irpwind.eu/

MARINTEK is involved in WP6 (WP6.1, WP6.2 and WP6.3), Offshore Wind Energy work package coordinated by Dr. John O. Tande, SINTEF (NO). Benchmarking the codes against experimental and full scale data are among the tasks which are carried out by MARINTEK in this project.

VI. Snorre B (Client: Statoil)

Summer 2015

Using SIMA for ULS (intact) and ALS (single and double line break) as well as FLS analysis of mooring system of Snorre B semisubmersible platform; a short project to assess the structural integrity of the mooring system based on the NORSOK and DNV standards and Statoil requirements.

VII. Ringing analysis of gravity based structure; offshore oil platform (Client: Husky Energy, Canada)

Autumn 2015---Spring 2016

The project is a 3rd party verification analysis on the nonlinear ringing wave loads and responses on a planned new Well Head Platform – a Concrete Gravity Substructure (CGS) - in the existing White Rose Field East of Newfoundland, Canada.

Objective and scope of the work:

- Provide Husky with a report that summarizes the findings of the verification analysis work undertaken to corroborate the hydrodynamic approach undertaken by the CGS engineering contractor as it relates to the ringing phenomenon.
- Determine appropriate ringing load amplification factors for the 100 and 10,000 year return periods
- Fluid-Structure interactions: Wave loads and CGS responses shall be simulated by a combination of CFD, analytical/semi-empirical, and FEM methods.

- CFD analyses for a rigid structure in Star-CCM+
- Analytical/semi-empirical and structural simulations using the time-domain software RIFLEX, FEM computer program developed by MARINTEK for analysis of slender marine structures

VIII. Lifes50+ (Client: European commission)

August 2015---March 2017

Role: Reviewer and quality assurer

The focus of the project will be on floating wind turbines installed at water depths from 50m to about 200m. The consortium partners have chosen to focus on large wind turbines (in the region of 10MW), which are seen as the most effective way of reducing the Levelized Cost of Energy (LCOE). The objective of the proposed project is two-fold:

1. Optimize and qualify, to a TRL5 level, two substructure concepts for 10MW turbines. The chosen concepts will be taken from an existing list of four TRL>4 candidates currently supporting turbines in the region of 5MW. The selection of the two concepts will be made based on technical, economical, and industrial criteria. An existing reference 10MW wind turbine design will be used throughout the project.

2. More generally, develop a streamlined and KPI-based methodology for the design and qualification process, focusing on technical, economical, and industrial aspects. This methodology will be supported by existing numerical tools, and targeted development and experimental work. It is expected that resulting guidelines/recommended practices will facilitate innovation and competition in the industry, reduce risks, and indirectly this time, and contribute to a lower LCOE.

End users for the project deliverables will be developers, designers and manufacturers, but also decision makers who need to evaluate a concept based on given constraints. The proposed project is expected to have a broad impact since it is not led by single group of existing business partners, focusing on one concept only. On the contrary, it will involve a strong consortium reflecting the value chain for offshore wind turbines: researchers, designers, classification societies, manufacturers, utilities. This will ensure that the project's outcomes suit the concrete requirements imposed by end-users.

IX. Yinson FPSO (Floating Production Storage and Offloading)

October 2015---February 2016

Comparing the coupled wave-induced analysis and experiments performed at ocean basin of MARINTEK. This includes studying the Truncation of mooring system and Challenges in Deep Water Experiments: the Hybrid Approach. Wind, current and wave loadings are considered in tests and corresponding numerical simulations.

The full depth model and truncated systems have been modeled in SIMA work space which is the advanced simulation tool at MARINTEK for analyzing the coupled/integrated dynamic problems in ocean/offshore engineering. The spread mooring system capacity and motion responses in different loading conditions of FPSO such as ballasted and fully loaded cases are analyzed and compared with model test results.

X. Recommended practice for ULS loads on monopiles (Client: Statoil)

January 2016---May 2016

This recommendation will be mainly based on model tests and numerical investigations carried out for the

design of the Dudgeon wind farm. The work will cover the following main topics:

- Sensitivity study regarding structural natural frequency
  - Two structural models: model-of-the-model and model with realistic mode shape
  - Modify stiffness in order to achieve +/- 10% change in natural frequency
  - Numerical analysis using RIFLEX with all irregular waves from model test campaign
  - Examine changes in Gumbel dist. of maxima,
    - generate plots of specific time instances
    - regarding change in phase of response w.r.t the wave
- Flexible versus rigid model: maximum events for flexible model do not correspond to maximum events for rigid model (ringing is important for maximum response).
- Examination of slamming events
  - Examine events where rigid model experienced maximum shear force/moment
  - Examine corresponding time history for rigid model, commenting on correlation
  - Compare loads on rigid model vs RIFLEX and empirical slamming coefficients/wave steepness

XI. Real Time Hybrid Model Testing for Extreme Marine Environments (Client: Statoil, Salmar, ABB)
August 2016---March 2017

The primary objective of the project is to develop a new methodology called Real-Time Hybrid Model Testing (or simply "hybrid testing") for testing marine systems and operations when:

- the limitations on the physical size or characteristics of testing facilities do not allow a full model of the system to be accommodated,
- conflict in scaling between different subsystems hinders the use of conventional model testing, and
- the focus of a test is the performance of a single module in a complex operation involving many different physical systems.

August.2012---August.2013, Senior Structural Analyzer
Kvaerner (Aker-Kvaerner), Trondheim, Norway, http://www.kvaerner.com/
Projects related to Structural analyses of oil/gas platforms (EPC projects)

A. Martin Linge Jacket (Client: Total and Statoil)

Sling laydown platform (autumn 2012):

- Design, FEM analyses and Code checking based on Norsok and ISO for main structure and local design of bolt, weld and connecting plates
- Lifting analyses
- Design of Grating and local/global utilization check
  - Software applied: Genie, Sestra, Framework (DNV codes)
  - Methods: Load combinations including transportation, launching, and operational (global and local functional loads), Linear FEM structural analyses by Sestra
- Technical reports: Issued for review, Issued for approval, Issued for constructions
  - These includes all the calculations, analyses and numerical simulations for the design and drawings approved for constructions at the yard

B. Edvard Grieg Jacket (Client: Lundin)

Grillage and seafastening (winter 2012---spring 2013):

- Design, FEM analyses and Code checking based on Norsok and Euro codes for main members (K-roll braces) and local design of gusset plates, weld connections; Saipem barge local structural check
    - Software applied: Sesam, Genie, Framework (DNV codes) including scripting, Mathcad calculations
    - Methods: Load combinations for transportation, Stability, buckling and member checks
- Technical reports: Issued for review, Issued for approval, Issued for constructions
    - These includes all the calculations, analyses and numerical simulations for the design and drawings approved for constructions at the yard
    - Comments from client (Lundin), contractor (Saipem) and third party (LOC) are considered and applied during the project

C. ULS tasks for Valhall QP jacket (Client: BP)
@ Aker Solution at Bergen

Pushover and redundancy reanalysis (spring 2013---summer 2013):
Due to subsidence of the seabed and aging of the living quarter platform (QP), drilling platform (DP) and Process and Compression platform (PCP), the Valhall Redevelopment (VRD) project was established.

- The reanalysis covers pushover analyses, wave in deck loads (due to slamming) and redundancy checks for jacket members based on Norsok and MSL.
- USFOS has been used to do the nonlinear analyses for different load conditions including the irregular wave loading and wave in deck combined with wind and current loads.
- Member and joint checks, buckling, yield, plastic hinges and fracture are considered for structural integrity assessments.

D. FLS tasks related to Lifetime Extension of Valhall (Client: BP)
@ Aker Solution at Bergen

May-June 2013: Tasks related to Lifetime Extension of Valhall

In order to set the Structure Long Term Inspection Plan the Fatigue Reanalysis of the Valhall Quarters Platform, Production Platform and Drilling Platform were carried out by Aker Solutions, Bergen. The subsidence influences the miner fatigue of the elements during the years of operations.

In this project following actions are performed:

- Fatigue calculations are updated considering the new rate of subsidence,
- And, applying the Norsok and BP GP structural requirements for design fatigue factor (DFF). This is based on the location of elements compared to water level (LAT) and splash zone.

Three jackets have been considered:

1) QP jacket: Living quarter platform
2) PCP jacket: Production (Process) platform
3) DP jacket: Drilling platform

E. Risk-based inspection of Valhall jackets (Client: BP)
@ Aker Solution at Bergen

July 2013: Tasks related to Lifetime Extension of Valhall, Risk based inspection

- Incorporating the reliability methods for estimating the risk factors
- Redundancy analyses and fatigue damage analyses have been used as basis
- Three jackets have been analyzed, living quarter, production and drilling jackets

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November.2010---August.2012, Post-Doc. Scholar, CeSOS/NTNU and NOWITECH/SINTEF
Offshore wind technology projects
http://www.sintef.no/projectweb/nowitech/

➢ Post-doctoral research aspects
- Conceptual study of base platforms for offshore wind turbines
- Alternative offshore wind turbines for moderate water depths
  - Wave and wind induced coupled analyses considering aero-hydro-servo-elastic modeling
  - Coupled mooring system- structure integrated analyses
  - Simplified methods vs. comprehensive approaches, introducing fast method while maintaining specified accuracy
  - HAWC2 vs. TDHMILL3D
  - Structural integrity and functionality of system in operational and survival conditions
- Comparison of spar-type wind turbines in deep and moderate water depth (DeepSpar vs. ShortSpar)
- Investigating the feasibility of floating wind turbines in intermediate and shallow water depths
- Nonlinear Stochastic Dynamic Responses- Structural and motion responses (Coupled wave and wind loading for 5-MW wind turbine units)
- Patent application for wind and wave energy device
- STC (spar-torus combination): A combined spar-type floating wind turbine and large point absorber floating wave energy converter
  - Dynamic structural, motion response and power performance
  - Responses of STC in harsh conditions considering different survival modes
  - Synergy effects of combination wave and wind energy devices
  - Patent application for a promising combined system
- Drivetrain of wind turbines
  - Modelling and analysis of floating spar-type wind turbine drivetrain
  - Floating spar-type vs. land-based
  - Parametric study of platform design and its influences on mechanical components of wind turbine
- Fault conditions
  - Steady-state response of a parked spar-type wind turbine considering blade pitch mechanism fault
  - Dynamic response analysis of wind turbines considering blade pitch system fault and shut-down events
  - Land-based wind turbine vs. floating wind turbine regarding the responses under fault conditions

- Structural Dynamic Response of Multi-Body Systems (wave energy convertors and wind turbines)
- Parameter Sensitivity of Short-term Fatigue Damage of Spar-type Wind Turbine Tower

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August.2007---November.2010, Ph.D. Scholar, CeSOS, Norway
Floating wind turbines projects
http://www.cesos.ntnu.no/

➢ PhD research aspects

- Modelling and analyses of MW wind turbines
- Catenary mooring and tension leg mooring systems
  - Nonlinear spring model
  - Physical model of the lines
  - Structural damping of the mooring lines
- Environmental conditions
  - Joint distribution of the wave and wind
  - Stochastic wave and wind modelling
  - Avoiding repetition of the wave and wind time series
  - Number of frequencies, cut-in and cut-out frequencies
  - Effect of the sample size
- Damping
  - Structural damping effects of the tower/support structure
  - Aerodynamic damping
  - Hydrodynamic damping
  - Negative damping
- Control and servo
  - Constant torque control algorithm
  - Modifying the controller gains and tuning the controller
- Aerodynamics
  - Tower shadow effects
  - Upwind (potential tower shadow model)
  - Downwind (jet tower shadow model)
- Comparative studies
  - Hydrodynamic and hydro-elastic code-to-code comparison
  - Parked versus operational conditions
  - Wave-induced versus wind-wave-induced responses
  - Constant and turbulent wind speeds
  - Rigid and elastic body
  - Rotor configuration
- Extreme value estimation
  - Monte Carlo simulations
  - Up-crossing rates
  - Extrapolation methods
  - Evaluation and application of contour surface methods for offshore wind power units
- Code-to-code comparison and numerical tools evaluation
  - Usfos-vpOne vs. HAWC2
  - DeepC (Simo-Riflex) vs. HAWC2
  - HAWC2 vs. FAST
- Offshore code comparison collaboration within IEA wind task 23:Phase IV results regarding floating wind turbine modeling

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2008 and 2009, Teacher Assistant of FEM course (TMR 4190), NTNU
Abaqus workshop and FEM course for 5th year students

2006-2007, Design Office, Iran Marine Industrial Co. (SADRA), Design Engineer
LPG and shuttle oil tanker projects, as naval architecture

2006, Marine Engineering and Naval Architecture Laboratory, Sharif University of Tech,
Research assistant in Marine Laboratory, Sharif University of Technology, Designing of Out-door Seakeeping Test System, financed by Center of Marine Research and Development, Iran
http://www.sharif.ir/web/en/

- MSc research aspects
  - Motion response analysis
  - M.Sc. Dissertation: Wave induced motion (Designing of Out-door Seakeeping Test System)
  - Wave maker, Generation of regular and irregular waves in flume) and evaluation of motion of simple marine vehicles
  - Coupled responses of offshore structure, FPSO and SPM
  - Dynamic of marine vehicles
  - Hydrodynamic lift for high speed craft
  - Neural network (basics)
  - Water impact (study of wedge structural reaction in slamming)

2005-2006 (part time), Educational guider for talented-students (Momtazeh-Iran High School, Tehran)
Invited lecturer at high school (two semesters)

2005, Tiva Group, Marine Design Office, Outfitting and Structural Engineer
Structural engineer, fuel tank FEM analyses for high speed crafts

2004 (limited hours), ISOICO, Design Office
Structural division, scantling of ships

2004-2006 (part time), Teacher Assistant, Sharif U. of Technology
Maxsurf, Autoship, hydrostatic analyses for marine vehicles
http://www.sharif.ir/web/en/

- BSc research aspects
  - B.Sc. Dissertation: Design of 35000 DWT Product Carrier's Propulsion System
    - Including Model Tests,
    - Model Making,
    - Engine and Propeller choosing (Propulsion) and comparing with KOMAC Designing) (This vehicle was produced by ISOICO in Iran)

Computer Software Familiarities

Programming and Math: **FORTRAN** (intermediate 2007)**, Matlab and Simulink** (good 2016)**, WAFO** (good 2016), Python (intermediate 2016)

Mechanical Engineering: **Autocad** (good 2014)**, Mechanical Desktop (MDT)** (good 2005)

Wind Engineering: **HAWC2** (very good 2012)**, FAST** (good 2012)**, Simo-Riflex-Aerodyn** (very good 2016)

Structural Analysis: **Ansys** (intermediate 2005)**, ABAQUS** (good 2015)**, USFOS** (good 2013)**, Sesam-Genie** (good 2013) **(Framework, Sestra, Xtract)** (good 2013)

Coupled dynamic response: **SIMA** (very good 2016)**, Simo-Riflex** (very good 2016)**, DeepC (DNV Sesam codes)** (very good 2012)

Wave and Hydrodynamic: **WAMIT** (good 2015), **WADAM** (very good 2012)**, HydroD** (very good 2012)**, Shear7** (intermediate 2013)

Offshore, Ship and Ocean Engineering: **Tribon** (basics 2006)**, Maxsurf** (good 2004)**, Autoship** (good 2002)

CFD: **Fluent** (intermediate 2001)

Modeling: **MultiSurf** (good 2012)**, Sesam-GenieE** (good 2013)

Training during work

- Cayac introduction by Kvaerner-Verdal
- Jacket design by Kvaerner-Oslo
- USFOS,
  - USFOS workshop (DNV), by Prof. Amdahl
  - USFOS theoretical background
- Courses in business integrity for employees in Jackets business (kurs i forretningsintegritet for medarbeidere i Jackets forretningsområde)
- Project execution manager and explorer (PEM, PEX), Aker-Kvaerner
- SESAM codes, by DNV-Norway
  - GeniE, Wajac, Sestra, Splice, Framework
- Sesam codes applications for oil-gas EPC projects (Internal training by Kvaerner-Oslo)
- SIPOK – SINTEF Prosjekt og kunnskapsforvaltning (SINTEF Project and Knowledge Management)
- Welcome to SINTEF, August 2013
- Slender Marine Structure lectures (pipeline, riser and umbilical structures) given by Porf. S. Sævik and Prof. Carl M. Larsen
- Management in SINTEF, January 2016
  - Project start up and implementation
  - Project initiation and planning
  - Practical advice for Project Management
  - Motivation, Culture and cultural differences
  - Economy in SINTEF
  - Team building, Group dynamics, Roles and self-rating
- Impact Workshops (REF), QUB, May 2017

- COST (European framework supporting transnational cooperation among researchers, engineers and scholars), QUB, May 2017
- ERC Advanced Grant session, Research and Enterprise Directorate, Queen's University Belfast, May 2017
- Pure (Elsevier) training, Research and Enterprise Directorate, Queen's University Belfast, May 2017

Standards and international codes

European standards (Euro codes); Norsok; GL; BV; LR; DNV; API; ABS; IEC, ASME
Recently used standards:

- Eurocode: Design of Steel Structures
  - NS-EN 1993-1-1 Part 1-1: General rules and rules for buildings
  - NS-EN 1993-1-5 Part 1-5: Plated structural elements
  - NS-EN 1993-1-8 Part 1-8: Design of joints
- NORSOK Standard N-004, Design of Steel Structures
- Recommended Practice, DNV-RP-C205, Environmental Conditions and Environmental Loads
- Rules for Planning and Execution of Marine Operations, DNV
- IEC 61400
  - IEC 61400-1, Design requirements (wind turbines)
  - IEC 61400-3, Design requirements for offshore wind turbines

Language Proficiency

Norwegian: Intermediate (Trinn to)
Persian: Mother Tongue
English: Fluent, TOEFL

Spare Time Activities

Guitar Playing, Hiking, Fishing, Writing and Reading

Visited countries (business and pleasure)

Norway, Ukraine, Sweden, Denmark, Spain, Italy, China, Brazil, Belgium, USA, Iran, France, Turkey, Netherlands, Portugal, UK (Northern Ireland, Scotland and England), Greece, Canada, Austria, Czech Republic

References

1) Professor Trevor Whittaker FREng. FICE. FRINA. CEng
   Professor of Coastal Engineering & Head of Marine Group
   EPS Faculty Director of D-Cubed
   Queen's University Belfast, Computer Science Building, Malone Road, Belfast, BT9 5AG
   Tel: 02890974031
   Email: t.whittaker@qub.ac.uk

2) Professor Torgeir Moan
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4) Professor Nigel Barltrop
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5) Professor Finn Gunnar Nielsen
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6) Dr. Jason Jonkman
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jason.jonkman@nrel.gov
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http://www.nrel.gov/wind/research_staff_bios.html

7) Professor Zhen Gao
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Presentations/Speech in Conferences and Lectures

- ❖ EERA DeepWind conference, January 2017, Trondheim, Norway
  Sensitivity Analysis of Limited Actuation for Real-time Hybrid Model Testing of 5MW and 10MW Monopile Offshore Wind Turbines

- ➢ Lecture at Sharif University of Technology, Opportunities of Iran Marine Industries, Tehran, Iran, December 2016

- ➢ Lecture at Amirkabir University of Technology (formerly called the Tehran Polytechnic), Offshore Technology, Iran, December 2016.

- ➢ Several meetings in Europe for different international projects, mainly related to offshore renewable energies, in the period of 2013-2017

- ❖ IRPWind Conference 2016, Amsterdam, September 2016. Poster presentation: "Numerical Simulations versus Hybrid Model Tests for a Braceless Semi-Submersible Wind Turbine", Madjid Karimirad, Petter Andreas Berthelsen, Harald Ormberg

- ➢ Lecture for Wind Energy and Offshore Wind Turbines, Presidency of I.R. of Iran, Vice-Presidency for Science and Technology, July 2016

- ➢ Dynamics and Vibration of Offshore Energy Structures, University of Victoria, BC, Canada, 15 May 2015 (invited to have a research presentation)

- ❖ EERA DeepWind conference, February 2015, Trondheim, Norway

- ➢ Dynamics of Wind Turbines, Sharif University of Technology (Invited to lecture for MSC and PhD levels), January 2015

- ❖ Renew2014, International Conference on Renewable Energies Offshore, 2014, Lisbon, Portugal

- 31th International Conference on Ocean, Offshore and Arctic Engineering, OMAE2012 conference, Brazil
- DeepWind conference, January 2012, Trondheim, Norway
- Doctoral thesis trial-lecture: "Marine Operations Related to Installations of Offshore Wind Turbines", NTNU, Norway, 2011
- Ph.D. thesis lecture: "Stochastic Dynamic Response Analysis of Spar-Type Wind Turbines with Catenary or Taut Mooring Systems", NTNU, Norway, 2011
- American Wind Energy Association, AWEA-WINDPOWER2011 conference, 2011, Anaheim, CA, USA
- European Wind Energy Conference (EWEC2011), March 2011, Brussels, Belgium
- ASME 2010 29th International Conference on Ocean, Offshore and Arctic Engineering, China, June 2010
- Offshore Wind Conference 2009, Stockholm, Sweden, September 2009
- Computational Methods in Marine Engineering Conference, Norway, June 2009
- Floating Wind Turbines, Sharif University of Technology (Invited to lecture for BSc and MSc levels), 2008
- Second Offshore Conference, Tehran, Iran, 2007
- 7th Conference of Marine Industries, Paper No. 102-76, Tehran, Iran, 2005