



## Curriculum Vitae

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Name: Carl Martin Larsen  
Born: 4 September 1945, in Hadsel, Norway  
Marital status: Married, 3 children  
Education: Sivilingeniør (M.Sc) in Naval Architecture, NTH 1970  
Dr.ing. (PhD) in Marine Technology, NTH 1976  
Languages: English (fluently)

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### Positions:

2008 – present Affiliated professor at Agder University, Grimstad  
2006 Visiting professor, Department of maritime and transport technology, TU Delft, Netherlands (5 months)  
1994 - 1995 Visiting professor at the Department of Naval Architecture and Marine Engineering, University of Michigan, USA (12 months).  
1987 - 1988 Visiting professor, Elf Aquitaine, Pau, France (12 months).  
1984 - present Professor at Department of Marine Technology, Faculty of Engineering Science and Technology, Norwegian University of Science and Technology (NTNU)  
1982 - 1983 Engaged as Head of Marine Technology Section, Division of Structural Engineering, SINTEF  
1978 Visiting expert, Statoil, Department of Quality assurance and risk control (5 months).  
1976 - 1983 Assistant Professor at Department of Marine Structures, NTH  
1975 Research Engineer in Marine Technology Group at The River and Harbor Laboratory (VHL)  
1972 - 1974 University Scholarship at the Department of Marine Structures, NTH  
1971 Research Engineer, SINTEF, Structural Engineering

### Other professional activities:

2006 Member of a group for evaluation of the marine technology education programme at TU Delft, on behalf of QANU  
2002 - 2005 Head of Department of Marine Technology at Faculty of Engineering Science and Technology  
1999 - 2003 Member of the Executive Committee of WEGEMT; "A European Association of Universities in Marine Technology and Related Sciences"  
1998 - 2002 Head of Department of Marine Structures at the Faculty of marine technology, NTNU  
1997 – 2000 Member of the ISSC Committee V.5, "Structural design of pipelines, risers and sub sea systems".  
1996 - 1999 Member of the "Dr.ing. Committee", NTNU  
1994 Member of the local organizing Committee, "Hydroelasticity in Marine Technology", Trondheim  
1992 - 1995 Member of the Budget Committee at the Norwegian Institute of Technology (NTH)  
1991 - 1997 Member of Board of Directors, MARINTEK A/S  
1993 Member of the local organizing Committee, EURO DYN, Trondheim 1993  
1990 - 1994 Member of the "Scholarship Committee", Royal Norwegian Council for Scientific and Industrial Research (NTNF), Committee chairman from 1992  
1991 Chairman, International Committee, WEGEMT Fourteenth Graduate School "Slender marine Structures - pipelines and risers" (Trondheim, January 1991)  
1989 - 1992 Head of Faculty of Marine Technology (Dekanus), The Norwegian Institute of Technology, Trondheim (NTH, NTNU from 1996)  
1988 - 1994 Chairman of ISSC Committee V.7, "Slender marine structures".  
1988 - 1999 Member of the Board of Advisors, The Norwegian Maritime Directorate  
1987 Secretary, Organizing committee, PRADS '87 (Practical Design in Shipbuilding)  
1986 - 1989 Member of the ISSC Committee II.2, "Dynamic load effects".  
1983 - present: Scientific advisor, SINTEF, Structures and Concrete (since 1999: MARINTEK, Structural engineering)  
1983 - 1985 Programme coordinator, NTNF sponsored programme "Marine Structures"

**Chairman for doctoral committees (supervisor)**

Xu Jun (1988), Torbjørn Sotberg (1990), Nils Sødahl (1991) Harald Ormberg (1991), Svein Sævik (1992), Elizabeth Passano (1994), Karl H. Halse (1997), Kyrre Vikestad (1998), Are Berstad (1999), Harald Tronstad (2000), Kjetil Skaugset (2003), Rune Yttervik (2004), Kristoffer Høyem Aronsen (2007), Prashant Kumar Soni (2008), Kamran Koushan (2009), Jie Wu (2011)

**Member of doctoral committees**

Jerzy Czujko (NTH, 1984) Henrik Nedergaard (DTH 1986), Andreas Back-Pedersen (DTH 1991), Bjørnar Svingen (NTNU 1996), Stuart Higgins (Monash University 2000), Hayden Marcollo (Monash University 2003)

**Present dr.ing. students (August 2011)**

Ronny Sten, Nils Grimsmo, Ida Aglen, Yin Decao, Arturo Malca, Ausberto Medina

**Member of committees for academic promotion**

Joel Witz, to Reader, University College London  
Spyridon A. Mawrakos, to professor, National technical University of Athens  
Joel Witz, to professor, University College London

**Commercial research involvements (since 1991, incomplete)**

“RIFLEX, a computer program for static and dynamic analysis of marine risers, User Group” Advisor on modelling and development of methods for analysis. Joint Industry Project (JIP), 3-8 participants

“CAFLEX, a program for stress analysis of flexible riser cross sections”, in cooperation with Institute Français du Pétrole, supported by Statoil.

“Development of a workover riser, dynamic response and fatigue analysis, stressjoint design”, Advanced engineering, sponsored by Kongsberg Offshore.

“FPS-2000, Floating Production Systems for the year 2000”, JIP supported by NTNF.

“Heave compensation of tensioned risers for TLPs and DDFs”, sponsored by British Petroleum and Statoil.

“RINGING, Higher order loads and response from steep and high waves on fixed and tension leg platforms” In cooperation with Det Norske Veritas, Coordinator for the activity in Trondheim, JIP, 8 participants

“Monitoring of deepwater drilling risers”, in cooperation with SEAFLEX, sponsored by Statoil

“Processing of measured response in tensioned marine riser”, sponsored by Snamprogetti.

“Titanium in marine risers”, Participating in a sub-project on simplified design analysis methods, JIP

“Riser design by use of optimization techniques”, sponsored by Norsk Hydro

“DEEPER, Deep Water Analysis Tools”, in cooperation with Det Norske Veritas. Responsible for the sub-project “Deep water risers”, JIP supported by NFR, 10 participants.

"Analysis of data from instrumented deepwater drilling risers", in cooperation with ROBIT and SEAFLEX, for the Norwegian Deepwater Projects group (Statoil, Norsk Hydro, BP, Mobil, Exxon, Shell)

"VIVANA - a computer program for analysis of vortex induced vibrations, JIP supported by NFR and 10 other clients

“Assessment of Fatigue Safety Factors for Deep-Water Risers”, Norwegian Deepwater programme 2001-2003

“Dynamic analysis of falling riser; verification of previous analyses”, Petrobras 2002-2003

”Ormen Lange Pipeline VIV study”, Norsk Hydro, 2001-2003

### **List of publications (since 1991)**

#### **Books (Member of editor group)**

- /1/ T. Moan, P.G. Bergan, O.T. Gudmestad, C.M. Larsen, P.K. Larsen, S. Nordal and S. Remseth: "Proceedings of the second European Conference on Structural Dynamics: EURODYN'93 / Trondheim / Norway / 21-23 June 1993" A.A. Balkema, Potterdam 1993
- /2/ O. Faltinsen, C.M. Larsen, T. Moan, K.O. Holden and N. Spidsøe: "Proceedings of the International Conference on Hydroelasticity in Marine Technology / Trondheim / Norway, 25-27 May 1994" A.A. Balkema, Rotterdam 1994

#### **Papers in scientific periodica with referee (3 before 1991):**

- /1/ Carl M. Larsen and Tor Hanson: "Optimization of catenary risers". Journal of Offshore Mechanics and Arctic Engineering, Vol. 121, May 1999
- /2/ Vikestad, K., Vandiver, J.K. and Larsen, C.M.: "Added mass and oscillation frequency for a circular cylinder subjected to vortex-induced vibrations and external disturbance" Journal of Fluid and Structures, (2000), Vol. 14.
- /3/ Sørensen, Leira, Strand and Larsen: " Optimal Setpoint Chasing in Dynamic Positioning of Deep-Water Drilling and Intervention Vessels " International Journal of Robust and Nonlinear Control, 2001
- /4/ Skaugset, K.B. and Larsen, C.M.: "Effect On Vortex Induced Vibrations From Radial Water Jets Along A Circular Cylinder", Journal of Fluid and Structures (2002)
- /5/ Lyons, G.J., Vandiver, J.K., Larsen, C.M. and Ashcomb, G.T.: "Vortex induced vibrations measured in service in the Foinhaven dynamic umbilical, and lessons from with predictions" Journal of Fluid and Structures 17 (2003) 1079-1094
- /6/ Bjørset, A., Remseth, S., Leira, B.J. and Larsen, C.M.: "Titanium pipes subjected to bending moment and external pressure". Computers and Structures 81 (2003) pp 2691-2704
- /7/ Skaugset, K.B. and Larsen, C.M.: "DNS and experimental investigation on vortex shedding and VIV modification using radial water jets along circular cylinders", Journal of Fluid and Structures (Paper accepted for publication 2004)
- /8/ Leira, B.J., Sørensen, A.J. and Larsen, C.M.: "A reliability-based control algorithm for dynamic positioning of floating vessels". Journal of Structural Safety, Vol 26, 2004, pp 1-28
- /9/ J R Chaplin, P W Bearman, Y. Cheng, E Fontaine, J.M.R. Graham, K Herfjord, F.J. Huarte, M Isherwood, K. Lambrakos, C M Larsen, J R Meneghini, G Moe, R.J. Pattenden, M S Triantafyllou, R.H.J. Willden: "Blind predictions of laboratory measurements of vortex-induced vibrations of a Tension Riser". Journal of fluid and structures 21 (2005), 25-40
- /10/ Baarholm, Gro S., Larsen, C.M. and Lie, Halvor: "On fatigue damage accumulation from in-line and cross-flow vortex induced vibrations on risers" Journal of Fluids and Structures, 22 (2006) 109-127
- /11/ Baarholm, Gro S., Larsen, Carl M. and Lie, Halvor: "Reduction of VIV using suppression devices – A Theoretical Approach" Journal of Marine Structures 2006
- /12/ Rustad, A. M., Larsen, C. M. and Sørensen, A. J. FEM modelling and automatic control for collision prevention of top tensioned risers. *Marine Structures*, 2008, Vol. 21, No. 1, pp. 80-112.
- /13/ Huang, Z. Y. and Larsen, C. M. Large eddy simulation on interaction between in-line and cross-flow oscillation of a circular cylinder *China Ocean Engineering* 24(4)

#### **Presentations at a scientific conference with full-length paper in proceedings (13 before 1991):**

- /1/ Carl M. Larsen: "FPS-2000, Floating Production Systems for Oil and Gas - National Research and Development Programme". Second International conference on Satellite and Marginal Oilfield Development, London, April 1991.
- /2/ Carl M. Larsen et. al: "ISSC Committee V.7: Slender Marine Structures". Presented to the ISSC Congress, Wuxi, China 19
- /3/ Carl M. Larsen: "Use of Long Term Statistics in Flexible Riser Design". Proceedings of International Seminar on Recent Research and Development within Flexible Pipe Technology. Trondheim February 1992.
- /4/ Nils Sødahl and Carl M. Larsen: "Methods for Estimation of Extreme Response of Flexible Risers". Proceedings of International Seminar on Recent Research and Development within Flexible Pipe Technology. Trondheim February 1992.

- /5/ Carl M. Larsen and Arnt Olufsen: "Extreme Response Estimation of Flexible Risers by Use of Long Term Statistics". Proceedings of the ISOPE conference, San Francisco 1992.
- /6/ Nils Sødahl and Carl M. Larsen: "Methods for Estimation of Extreme Response of Flexible Risers". Proceedings of the ISOPE conference, San Francisco 1992.
- /7/ Carl M. Larsen, Bernt J. Leira, Arnt Olufsen and Nils Sødahl: "Design Methods for Flexible Risers". Proceedings of the BOSS Conference, LONDON 1992.
- /8/ Shahrul Faiz Mohd Aziz and Carl M. Larsen: "Design and Analysis of Flexible Riser Systems using the RIFLEX Computer Program". Proceedings of the International Colloquium on Computer Applications in Coastal and Offshore Engineering, Kuala Lumpur 1993
- /9/ Carl M. Larsen, Wim Moris and Nils T. Nordse: "Riser Stroke Calculations for Deepwater Floating Production Units". Floating Production Systems, Blueprints for Year 2000. Stavanger November 1993.
- /10/ Elizabeth Passano and Carl M. Larsen: "Use of Frequency Domain results in Extreme Response Estimation of a Tensioned Riser", OMAE, Houston 1994.
- /11/ Carl M. Larsen: "Stochastic Analysis of Tensioner Stroke for Marine Risers", BOSS, Boston 1994.
- /12/ Carl M. Larsen et.al.: "ISSC Committee V.7: Slender Marine Structures". Presented to the ISSC Congress, St. Johns Newfoundland 1994.
- /13/ Carl M. Larsen and Karl H. Halse: "Comparison of Models for Vortex Induced Vibrations of Slender Marine Structures", Proceedings of the Sixth International Conference on Flow-induced Vibration, London UK, April 1995
- /14/ Carl M. Larsen and Allard van Hoeken: "Optimization of Steel and Titanium Stressjoints for Marine Risers" ISOPE 1995
- /15/ Carl M. Larsen, Kyrre Vikestad and J. Kim Vandiver: "On Multi-frequency Vortex Shedding Vibrations of Long Marine Risers", Proceedings of the OCEANS'96 conference, Fort Lauderdale, September 1996
- /16/ Carl M. Larsen: "Deep Water Risers" Seminar on Hydroelasticity in Marine Technology, Trondheim Nov. 1996
- /17/ Berstad, A.J., Faltinsen, O.M. and Larsen, C.M.: "Fatigue crack growth in side longitudinals" International Conference on Ship and Marine Research, Naples, March 1997
- /18/ Lie, H, Larsen, C.M. and Vandiver, J.K.: "Vortex induced vibrations of long marine risers; Model test in a rotating rig" OMAE Yokohama 1997
- /19/ Tronstad, H. and Larsen, C.M.: "NFEM approaches for calculating fishing gear as a system of flexible lines" OMAE Yokohama 1997
- /20/ Vikestad, K., Larsen, C.M. and Vandiver, J.K.: "Experimental study of excited circular cylinder in current" OMAE Yokohama 1997
- /21/ Larsen, C.M., Vandiver, J.K., Vikestad, K. and Lie, H.: "Vortex induced vibrations of long marine risers - experimental investigations of multi-frequency response" BOSS'97, Delft, The Netherlands
- /22/ Berstad, A.J. and Larsen, C.M.: "Fatigue crack growth in the side structure of high speed vessels" FAST'97 Sidney, Australia
- /23/ Tronstad, Harald, Larsen, Carl M. and Enerhaug, B: "Hydroelastic analysis of cable net tension structures based on FEM". International workshop on hydrodynamic aspects of fishing gear, Lorient, France, September 1997
- /24/ Larsen, C.M. and Hanson, T.: "Optimisation of Catenary Risers", OMAE, Lisboa 1998
- /25/ Halse, K.H. and Larsen, C.M.: "Prediction of Vortex-Induced Vibrations of a Free-Spanning Pipeline by Direct Numerical Simulation of the Flow Field", OMAE, Lisboa 1998
- /26/ Passano, E., Iglund, R.T., Mirza, S. and Larsen, C.M.: "Comparison of Measured and Simulated Riser Response to Surge Excitation and Waves", OMAE, Lisboa 1998
- /27/ Tronstad, H., Larsen, C.M. Enerhaug, B. and Abderrahmane, H.: "FEM in Multiobjective Design Optimization of Cable Net Structures", OMAE, Lisboa 1998
- /28/ Vikestad, K., Larsen, C.M. and Vandiver, J.K.: "Added mass and oscillation frequency for a circular cylinder subjected to vortex induced vibrations and external disturbance", International conference on Hydroelasticity in marine technology, Fukuoka, Japan Dec. 1998
- /29/ Berstad, A. and Larsen, C.M.: "Long term fatigue accumulation in ship side structures", PRADS, The Hague 1998
- /30/ Herfjord, K., Larsen, C.M., Furnes, G., Holmås, T. and Randa, K.: "FSI simulations of vortex induced vibration of offshore structures". Symposium on Computational Methods for Fluid-Structure Interaction, Trondheim February 1999
- /31/ Larsen, C.M. and Hanson, T.: "Optimisation of Catenary Risers", Journal of Offshore Mechanics and Arctic Engineering, Vol 121,2, May 1999

- /32/ Lyons, GJ, Vandiver, J.K., Larsen, C.M. and Ashcombe, G.T.: Vortex induced vibrations measured in service in the Foinaven dynamic umbilical, and comparison with predictions. Flow induced vibrations conference, Lucerne 2000
- /33/ Vikestad, K., Larsen, C.M. and Vandiver, J.K.: Norwegian Deepwater Program: Damping of Vortex-Induced Vibrations, OTC 2000-11998
- /34/ Sørensen, Leira, Strand and Larsen: "Modelling and control of riser angles and stresses in dynamic positioning" Manoeuvring and Control of Marine Craft - MCMC2000, August 23-25, 2000, Aalborg
- /35/ Larsen, C.M. (co-author) ISSC Committee V.5 "Structural Design of Pipelines, Risers and Subsea Systems" Report to the 14th ISSC conference, Nagasaki 2000
- /36/ Larsen, C.M.: "Empirical VIV models" Workshop on Vortex Induced Vibrations of Offshore Structures, Sao Paulo August 2000.
- /37/ Lie, H., Larsen, C.M. and Tveit, Ø.: "Vortex Induced Vibration Analysis of Catenary Risers", OTC 13115, Offshore Technology Conference, Houston 2001
- /38/ Larsen, C.M., Vikestad, K., Yttervik, R. and Passano, E.: "Empirical model for analysis of vortex induced vibrations - theoretical background and case studies", OMAE2001/OFT-1203, 20th international conference on Offshore mechanics and Arctic Engineering, Rio de Janeiro June 2001.
- /39/ Bjørset, A., Remset, S., Leira, B.J. and Larsen, C.M.: "Titanium pipes subjected to bending moment and external pressure", OMAE2001/MA T-3020. 20th international conference on Offshore mechanics and Arctic Engineering, Rio de Janeiro June 2001
- /40/ Leira, B.J., Chen, Q., Sørensen, A. and Larsen, C.M.: "Modeling of riser response for DP control", OMAE2001/SR-2160, 20th international conference on Offshore mechanics and Arctic Engineering, Rio de Janeiro June 2001
- /41/ Skaugset, K. and Larsen, C.M.: "Effect on vortex induced vibrations from radial water jets along a circular cylinder". First International Conference on Fluid Structure Interaction, 26 - 28 September 2001, Halkidiki, Greece
- /42/ Leira, B.J., Sørensen, A., Strand J.P. and Larsen, C.M.: "A Reliability-Based On-line Dynamic Positioning Control Algorithm". The 8th International Conference on Structural Safety and Reliability, June 2001, Newport Beach, USA
- /43/ Leira, B.J., Sørensen, A. and Larsen, C.M.: "Riser Angle Based Position Reference System". 21st international conference on Offshore Mechanics and Arctic Engineering, Oslo June 2002
- /44/ Larsen, C.M., Koushan, K. and Passano, E.: "Frequency and time domain analysis of vortex induced vibrations for free span pipelines". 21st international conference on Offshore Mechanics and Arctic Engineering, Oslo June 2002
- /45/ Skaugset, K. and Larsen, C.M.: "Suppression of Vortex Induced Vibrations of Circular Cylinders using Radial Water Jets", 21st international conference on Offshore Mechanics and Arctic Engineering, Oslo June 2002
- /46/ Skaugset, K. and Larsen, C.M.: "DNS and experimental investigation on vortex shedding and VIV modification using radial water jets along a circular cylinder". Symposium on Unsteady Separated Flows, April 2002, Toulouse France
- /47/ Leira, B.J., Sørensen, A. and Larsen, C.M.: "Dynamic Positioning Algorithm based on Riser Response Criteria". International symposium on Offshore and Polar Engineering, May 2002, Kitakyushu, Japan
- /48/ Leira, B.J., Sørensen, A. and Larsen, C.M.: "Reliability-based schemes for control of riser response and dynamic positioning of floating vessels". 21st international conference on Offshore Mechanics and Arctic Engineering, Oslo June 2002
- /49/ Sørensen, Larsen, Leira og Høiskar: "Riser angle Based Position Reference System", 21st international conference on Offshore Mechanics and Arctic Engineering, Oslo 2002
- /50/ Leira, Berntsen, Larsen, Meling and Stahl: "Assessment of Fatigue Safety Factors for Deep-Water Risers", OMAE2003-37346, 22<sup>nd</sup> International Conference on Offshore Mechanics and Arctic Engineering, June 2003, Cancun, Mexico
- /51/ Yttervik, Larsen and Furnes: "Fatigue from vortex-induced vibrations of free span pipelines using statistics of current speed and direction", OMAE2003-37223, 22<sup>nd</sup> International Conference on Offshore Mechanics and Arctic Engineering, June 2003, Cancun, Mexico
- /52/ Skaugset, K. and Larsen, C.M.: "Drag force reduction and VIV suppression of circular cylinders using radial water jets", OMAE2003-37102, 22<sup>nd</sup> International Conference on Offshore Mechanics and Arctic Engineering, June 2003, Cancun, Mexico
- /53/ Koushan, K. and Larsen, C.M.: "Influence from Temperature Variation and Multiple Spans on Vortex Induced Vibrations for Free Span Pipelines", 3rd International Conference on Hydroelasticity in Marine Technology, September 2003, Oxford, UK

- /54/ Yttervik, R., Reinholdtsen, S-S, Larsen, C.M. and Furnes, G.K.: "Marine operations in deep water and a variable current flow environment". 3rd International Conference on Hydroelasticity in Marine Technology, September 2003, Oxford, UK
- /55/ Larsen, Carl M., Baarholm, Gro S., Passano, Elizabeth and Koushan, Kamran: "Non-Linear Time Domain Analysis of Vortex Induced Vibrations for Free Spanning Pipelines" [OMAE2004-51404] Proceedings of 23rd International Conference on Offshore Mechanics and Arctic Engineering, Vancouver, Canada, June 2004
- /56/ Berntsen, V., Larsen, CM, Passano, E., de Moura Jorge, N. and Roberto, J: "On the Influence From Hydrodynamic Forces on Speed and Footprint for a Falling Riser" [OMAE2004-51405] Proceedings of 23rd International Conference on Offshore Mechanics and Arctic Engineering, Vancouver, Canada, June 2004
- /57/ Baarholm, G.S., Larsen, C.M., Lie, H., Mørk, K. and Meling, T.S.: "Simplified Model for Evaluation of Fatigue From Vortex Induced Vibrations of Marine Risers" [OMAE2004-51407] ] Proceedings of 23rd International Conference on Offshore Mechanics and Arctic Engineering, Vancouver, Canada, June 2004
- /58/ J R Chaplin, P W Bearman, E Fontaine, K Herfjord, M Isherwood, C M Larsen, J R Meneghini, G Moe, M S Triantafyllou: "Blind Predictions of Laboratory Measurements of Vortexinduced Vibrations of a Tension Riser", International symposium on Flow Induced Vibrations, Paris July 2004
- /59/ Soni, P. and Larsen, C. M. "Dynamic Interaction Between Spans in a Multi Span Pipeline Subjected to Vortex Induced Vibrations", OMAE2005-67192, 24th International Conference on Offshore Mechanics and Arctic Engineering, 12-17 June 2005, Halkidiki, Greece
- /60/ Larsen, C.M., Baarholm, G.S. and Lie, H: "Influence From Helical Strakes on Vortex Induced Vibrations and Static Deflection of Drilling Risers" OMAE2005-67192. 24th International Conference on Offshore Mechanics and Arctic Engineering, 12-17 June 2005, Halkidiki, Greece
- /61/ Aronsen, K., Larsen, C.M. and Mørk, K.: " Hydrodynamic Coefficients From In-Line VIV Experiments" OMAE2005-67393, OMAE2005-67192. 24th International Conference on Offshore Mechanics and Arctic Engineering, 12-17 June 2005, Halkidiki, Greece
- /62/ Larsen, C.M. and Koushan, K.: " Empirical model for the analysis of vortex induced vibrations of free spanning pipelines" Eurodyn, Paris 2005
- /63/ Larsen, C.M. and Passano, E.: "Time and frequency domain analysis of catenary risers subjected to vortex induced vibrations" OMAE 2006-92149, Hamburg
- /64/ Passano, E. and Larsen, C.M.: "Efficient analysis of a catenary riser" OMAE 2006-92308, Hamburg
- /65/ Baarholm, G.S., Larsen, C.M. and Lie, H.: "Effect of strakes on fatigue damage due to cross-flow VIV" 3<sup>rd</sup> International conference on hydroelasticity in marine technology, Wuxi 2006
- /66/ Lie, H. and Larsen, C.M.: "Vortex induced vibrations of deepwater risers and pipelines - review of model test results" 3<sup>rd</sup> International conference on hydroelasticity in marine technology, Wuxi 2006
- /67/ Soni, P.K. and Larsen, C.M.: "An experimental investigation of interaction between adjacent spans in pipelines" 3<sup>rd</sup> International conference on hydroelasticity in marine technology, Wuxi 2006
- /68/ Rustad, A. M., C. M. Larsen and A. J. Sørensen (2007). Deep Water Riser Collision Avoidance by Top Tension Control. In Proc. OMAE, 26th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2007-29172, June 10-15, San Diego, California, USA.
- /69/ Rustad, A. M., A. J. Sørensen and C. M. Larsen (2007). Supervisory Switched Control of Marine Risers. In Proceedings of the 7th IFAC Conference on Control Applications in Marine Systems (CAMS2007), September 19-21, Bol, Croatia.
- /70/ Anne M. Rustad, Carl M. Larsen, Asgeir J. Sorensen Deep Water Riser Collision Avoidance by Top Tension Control. PAPER: OMAE2007-29172
- /71/ Ioannis K. Chatjigeorgiou, Elizabeth Passano, Carl M. Larsen Extreme Bending Moments on Long Catenary Risers Due to Heave Excitation, PAPER: OMAE2007-29384
- /72/ Gro Sagli Baarholm; Sverre Haver; Carl M. Larsen. Wave Sector Dependent Contour Lines PAPER: OMAE2007-29417
- /73/ Elizabeth Passano; Carl M. Larsen Estimating Distributions for Extreme Response of a Catenary Riser. PAPER: OMAE2007-29547
- /74/ Jie Wu, Carl M. Larsen Hydrodynamic Force Identification From Vortex Induced Vibration Experiments With Slender Beams. PAPER: OMAE2007-29174
- /75/ Prashant K. Soni, Carl M. Larsen, Chittiappa Muthanna Vortex Induced Vibration of a Rigid Cylinder Oscillating With a Given Trajectory Profile, PAPER: OMAE2007-29193
- /76/ Djoni E. Sidarta, Kostas F. Lambrakos; Carl M. Larsen Hydrodynamic Coefficients for Riser In-Line VIV in Sheared Currents. PAPER: OMAE2007-29519
- /77/ Kristoffer H. Aronsen; Carl Martin Larsen Hydrodynamic Coefficients for In-Line Vortex Induced Vibrations, PAPER: OMAE2007-29531

- /78/ Carl M. Larsen; Rune Yttervik; Kristoffer Aronsen Calculation of In-Line Vortex Induced Vibrations of Free Spanning Pipelines, PAPER: OMAE2007-29533
- /79/ Lie, H., Larsen, C. M. and Kaasen, K. E. Frequency domain model for prediction of stochastic vortex induced vibrations for deep water risers. *Proceedings of the 27th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2008-57566*, 2008, 15-20 June - Estoril, Portugal.
- /80/ Rustad, A. M. and Larsen, C. M. Collision prevention of two different top tensioned risers by automatic control. *Proceedings of the 27th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2008-57496*, 2008, 15-20 June - Estoril, Portugal.
- /81/ Soni, P. K. and Larsen, C. M. Investigating the relevance of strip-theory for pipelines subjected to vortex-induced vibrations. *Proceedings of the 27th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2008-57551*, 2008, 15-20 June - Estoril, Portugal.
- /82/ Swithenbank, S. and Larsen, C. M. The importance of mode number on in-line amplitude of vortex-induced vibrations of flexible cylinders. *Proceedings of the 27th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2008-57531*, 2008, 15-20 June - Estoril, Portugal.
- /83/ Swithenbank, S., Larsen, C. M., Vandiver, J. K. and Lie, H. Reynolds number dependence of flexible VIV response data. *Proceedings of the 27th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2008-57045*, 2008, 15-20 June - Estoril, Portugal.
- /84/ Wu, J., Larsen, C. M. and Kaasen, K. E. A new approach for identification of forces on slender beams subjected to vortex-induced vibrations. *Proceedings of the 27th International Conference on Offshore Mechanics and Arctic Engineering, OMAE2008-57550*, 2008, 15-20 June - Estoril, Portugal.
- /85/ Aglen, I., Larsen, C. M. and Nielsen, F. G. Characterization of Measured VIV for Free Spanning Pipelines. *OMAE2009, Proceedings of the 28th International Conference on Ocean, Offshore and Arctic Engineering. OMAE2009-79561*, 2009, May 31-June 5 - Honolulu (HA), USA.
- /86/ Huang, Z. Y., Larsen, C. M. and Cui, W.C. 3-D LES study on a forced oscillating circular cylinder following the figure of eight movement. *Proceedings of the Conference on Hydroelasticity in Marine Technology*, 2009, 8-10 Sept. - Southampton, UK.
- /87/ Soni, P. K. and Larsen, C. M. Vortex Pattern Comparison for Periodic and Harmonic Combined Cross-Flow & In-Line Forced Oscillations. *OMAE2009, Proceedings of the 28th International Conference on Ocean, Offshore and Arctic Engineering. OMAE2009-80089*, 2009, May 31-June 5 - Honolulu (HA), USA
- /88/ Soni, P. K., Larsen, C. M. and Wu, J. Hydrodynamic Coefficients for Vortex Induced Vibrations on Slender Beams. *OMAE2009, Proceedings of the 28th International Conference on Ocean, Offshore and Arctic Engineering. OMAE2009-79797*, 2009, May 31-June 5 - Honolulu (HA), USA.
- /89/ Szwalek, J. and Larsen, C. M. Reynolds Number Effects on Hydrodynamic Coefficients for Pure In-Line and Pure Cross-Flow Vortex Induced Vibrations. *OMAE2009, Proceedings of the 28th International Conference on Ocean, Offshore and Arctic Engineering. OMAE2009-79399*, 2009, May 31-June 5 - Honolulu (HA), USA.
- /90/ Wu, J., Larsen, C. M., Lie, H., Passano, E. and Kendon, T. E. Prediction of Fatigue Damage from Stochastic Vortex Induced Vibrations. *Proceedings of the Conference on Hydroelasticity in Marine Technology*, 2009, 8-10 Sept. - Southampton, UK..
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#### **Invited lecture on scientific conference**

- /1/ Carl M. Larsen: "Key results from the FPS-2000 Flexible riser projects". Keynote lecture, the Regional Seminar on Coastal and Offshore Engineering, Dec. 1991. Kuala Terengganu, Malaysia.
- /2/ Carl M. Larsen: Use of Stochastic Dynamic Analysis in Marine Riser Design Keynote paper at the NSF Workshop on Riser Mechanics, Ann Arbor September 1992.
- /3/ Carl M. Larsen: Use of computer programs in design of marine structures - can we rely on the results? Keynote lecture at the International Colloquium "Computer Application in Coastal and Offshore Engineering", Kuala Lumpur, June 1993.
- /4/ Carl M. Larsen: ISSC Committee II.2 Dynamic Response; Official Discussor. 13<sup>th</sup> International Ship & Offshore Structures Congress, Trondheim August 1997
- /5/ Carl M. Larsen: Vortex induced vibrations of deepwater risers. Workshop on Subsea Pipelines, COPPE/Federal University of Rio de Janeiro, December 8-9 1997
- /6/ Larsen, C.M.: "Empirical VIV models" Workshop on Vortex Induced Vibrations of Offshore Structures, Sao Paulo August 2000.
- /7/ Larsen, C. M. and Lie, H. On Hydrodynamic Coefficients for Combined Cross-Flow and In-Line Vortex Induced Vibrations. *27th International Conference of Offshore Mechanics and Arctic Engineering, OMAE 200857569, 15 p.*, 2008, 15-20 June - Estoril, Portugal.
- /8/ Larsen, C. M. Slender marine structures - key features and methods for design analysis. *The 1st International Conference on Sustainable Infrastructure and Built Environment (SIBE)*, 2009, 2-3 Nov. - Bandung, Indonesia.

#### **Reports from commercial research projects (32 before 1991, incomplete):**

- /1/ Elizabeth Passano and Carl M. Larsen: "Smørbukk Sør Field Development Study. Concrete TLP Tether Fatigue Analysis". STF71 F91048, SINTEF Structural Engineering, Nov. 1991.
- /2/ Carl M. Larsen: "Draugen Workover Riser Analysis; Additional Work" SINTEF Structural Engineering TF70 F92075, Trondheim May 1991."
- /3/ Olufsen, A., Larsen, C.M., Leira, B.J. and Passano, E.: "Extreme response analysis of flexible risers". FPS-2000, Report 2.1-17. SINTEF Structural Engineering, Trondheim 1991.

- /4/ Carl M. Larsen: "Cossack Project, Completion Riser Analysis" SINTEF Structural Engineering, STF71 F91060, Trondheim December 1991.
- /5/ Carl M. Larsen: "Design Analysis Procedure". Sect. 4 in "Handbook on Design and Operation of Flexible Pipes". FPS-2000, Report STF70 A92006. SINTEF Structural Engineering, Trondheim 1992.
- /6/ Carl M. Larsen: "Draugen Workover Riser, Fatigue Analysis". SINTEF Structural Engineering, STF70 F92065. March 1992.
- /7/ Karl H. Halse and Carl M. Larsen: "Statfjord Satellites - Workover Riser System". Part one and two. SINTEF Structural Engineering, STF70 F92090/94, May 1992.
- /8/ Karl H. Halse and Carl M. Larsen: Draugen Workover Riser, Surface Tree Analysis. SINTEF, Structural Engineering, STF70 F92118. August 1992.
- /9/ Carl M. Larsen and Arve Bjørset: "Static Analysis of Non-Vertical Marine Risers by Simplified Methods". Titanium Risers and Flowline - Report 6.3, SINTEF Civil and Environmental Engineering, October 1996
- /10/ Larsen, C.M.: "RISOPT, A computer program for optimisation of marine risers - User's Manual" STF22 F99660, Trondheim March 1999.
- /11/ Larsen, C.M., Vikestad, K., Yttervik, R. and Passano, E.: "VIVANA, Theory Manual", MARINTEK, Trondheim, 2000
- /12/ Larsen, C.M.: "Ormen Lange – VIV analysis of free span pipeline models", MARINTEK report 700124.00.01
- /13/ Berntsen, V. and Larsen, C.M.: "Dynamic analysis of falling riser; Verification of previous analyses" MARINTEK report 700201.00.01
- /14/ Baarholm, G.S. and Larsen, C.M.: "Additional VIV Analysis – Fatigue Analysis of Hanøytangen Data" MARINTEK report, May 2003
- /15/ Baarholm, G.S., Larsen, C.M. and Lie, H.: "Simplified VIV - SIMVIV" MARINTEK report MT51 F04-034, February 2004

### Teaching

- /1/ Carl M. Larsen:  
"Response modelling of marine risers and pipelines". WEGEMT School, Trondheim Jan. 1991.
- /2/ Carl M. Larsen:  
Marine konstruksjoner, grunnkurs. Modellering og analysemetoder. Institutt for marine konstruksjoner. Januar 1991. (in Norwegian)
- /3/ Carl M. Larsen:  
Knekning av søyler. Instituttkompedium 1993 (in Norwegian).
- /4/ Carl M. Larsen:  
Stokastisk analyse av marine konstruksjoner. Instituttkompedium 1994 (in Norwegian).
- /5/ Carl M. Larsen:  
"Design and Analysis of Offshore Steel Jackets". Lecture notes, NAME, UofM 1995.
- /6/ Carl M. Larsen:  
"Tension Leg Platforms". Lecture notes, NAME, UofM 1995
- /7/ Carl M. Larsen:  
"Stochastic Analysis of Marine Structures". Lecture notes, NAME, UofM 1995.
- /8/ Carl M. Larsen:  
"Marine Riser Analysis". Lecture notes, NAME, UofM 1995
- /9/ Carl M. Larsen:  
"Static Analysis of Non-vertical Marine Risers by Simplified Methods". Lecture notes, Department of Marine Structures, NTNU 1996
- /10/ Carl M. Larsen: "Designanalyser for marine stigerør; Utfordringer på dypt vann" NIF's konferanse om Stigerørsteknologi, Trondheim april 1996 (in Norwegian)
- /11/ Carl M. Larsen: "Marin Teknikk 2 - Statikk for marine konstruksjoner" Tapir 2000 (in Norwegian)
- /12/ Carl M. Larsen: "Marin dynamikk" Tapir 2000 (in Norwegian)