

Harry B. Bingham

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BACKGROUND	Born: March 22, 1961; Geneva Switzerland. Citizenship: U.S.A. Languages: English (mother tongue), Danish (fluent), French (conversant).	
EMPLOYMENT	DTU - Technical University of Denmark, Lyngby, Denmark. Professor of Marine Hydrodynamics.	5/16– Present
	DTU - Technical University of Denmark, Lyngby, Denmark. Associate Professor of Computational Fluid Dynamics (lektor).	9/04– 4/16
	DTU - Technical University of Denmark, Lyngby, Denmark. Associate Research Professor (forskningslektor).	6/99–8/04
	DHI - Water and Environment, Hørsholm, Denmark. Coastal Engineer. Approximately 10% of full-time.	6/99–8/04
	UCB - University of California, Berkeley, CA, USA. Guest Lecturer.	1/99–6/99
	ICCH - International Research Centre for Computational Hydro. Hørsholm, Denmark. Research Scientist.	9/95–12/98
	MIT - Massachusetts Institute of Technology, Cambridge, MA, USA. Post-Doctoral Fellow.	2/94–9/95
	MIT - Massachusetts Institute of Technology, Cambridge, MA, USA. Research Assistant/Teaching Assistant, PhD student.	9/89–2/94
	SIT - Stevens Institute of Technology, Hoboken, NJ, USA. Lecturer/Research Fellow, Masters student.	9/85–6/87
DEGREES	PhD Massachusetts Institute of Technology, Cambridge, MA, USA PhD in Hydrodynamics, Dept. of Ocean Engineering.	2/94
	MEng Stevens Institute of Technology, Hoboken, NJ, USA Master of Engineering in Ocean Engineering, Dept. of Ocean Engineering.	5/88
	BS Cornell University, Ithaca, NY, USA Bachelor of Science, Dept. of Applied and Engineering Physics.	6/84
RESEARCH FOCUS	The main focus of my research is on understanding the dynamics of ocean waves and their interaction with fixed and floating marine structures. I develop mathematical approximations and numerical algorithms to describe the important physics of this interaction, and then apply these tools to improve the design of offshore, renewable energy installations such as wind turbines and wave power devices, and to improve the efficiency of ships.	
SUPERVISION	<u>POST-DOC PROJECTS</u> <ul style="list-style-type: none">• Ole Lindberg. 9/2015–12/2016.• Mostafa Amini Afshar. 10/2014–9/2016.• Robert Read. 2/2012–2/2014.• Ole Lindberg. 1/2012–12/2013.• Robert Read. 2/2010–2/2012.• Guillaume Ducrozet. 11/2008–10/2009.• Allan Engsig-Karup. 8/2006–12/2008.	

PHD PROJECTS

- 10 total, 7 as main supervisor. 1 in progress.

EVALUATION
COMMITTEESFUNDING PROPOSAL EVALUATION

- EU Horizons 2020, 2015 -

ASSOCIATE PROFESSOR EVALUATION

- Chalmers University of Technology, Sweden, 2015
- Aalborg University, Denmark, 2012
- Oslo University, Norway, 2011
- Tel Aviv University, Israel, 2004

PHD EVALUATION

- 21 total, 5 Danish and 16 international.

EXTERNAL
RESEARCH
FUNDING

Short Title	Dates	Funding Agency	Role	Total ^a	DTU Share ^b
DeRISK (wind power)	6/2015-5/2019	Innovation Fund DK	WP leader	24.9	4.3
Wavepiston (wave power)	2/2015-9/2017	ForskEL, DK.	WP leader	15.1	2.3
Wave Makers (in wave tanks)	1/2015-12/2016	Myhrwold Fund DK	Co-PI	0.2	0.2
Wave Cloaking	1/2015-12/2015	COWI Fund DK	Co-PI	0.2	0.2
Added Resistance (of ships)	10/2014-9/2016	Maritime Fund DK	PI	1.1	1.1
SHOPERA (safe ships)	10/2013-9/2016	EU-FP7	Key staff	47.9	1.3
Aquaculture (offshore)	8/2011-12/2015	GUDP, DK	WP leader	19	2.1
ULYSSES (efficient ships)	1/2011-12/2013	EU-FP7	WP leader	30	2.6
SDWED (wave power)	1/2010-12/2014	Strategic Research Council, DK	WP leader	20.2	2.2
WaveLoads (wind power)	1/2010-12/2014	ForskEL, DK	Key staff	6.3	2.2
Ocean Energy	8/2008-4/2012	Statkraft, NO	PI	2.2	1.7
Wave-Structure Interaction	11/2008-10/2009	Min. of Defense France	CoPI	.65	.65
Nonlinear Waves	8/2006-12/2008	Research Council DK	PI	1.3	1.3
Hybrid Num./Phys. Wave Modelling	7/2002-3/2006	Research Council DK	Key staff	1.5	1.3

^aBudget in million DKK^bAmount under my supervisionCONFERENCE
ORGANIZATION

Conference	Dates	Participants	Role
13 th Intern. Symp. on Practical Ship Design (PRADS)	4-8/09/2016	400	Local Organizing Committee
27 th Intern. Workshop on Water Waves & Floating Bodies (IWWF)	22-25/04/2012	90	Organizing Committee Chair

PUBLICATION
STATISTICS

WEB OF SCIENCE H-INDEX

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JOURNALS

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CONFERENCE PROCEEDINGS

66

Harry B. Bingham, Publication List (past five years)

- BOOKS Bingham, H.B., P.S. Larsen and V.A. Barker. (2014). *Computational Fluid Dynamics*. Polyteknisk Bookstore, Technical U. Denmark. 196 pages.
- JOURNALS (WITH REFEREE) Bingham, H.B. (2016). A note on the relative efficiency of methods for computing the transient free-surface Green function. *Ocean Engineering* **120**, 15–20.
- Ji, X., Liu, S., Bingham, H.B. and Li, J. (2015). Multi-directional random wave interaction with an array of cylinders. *Ocean Engineering* **110**, 62–77.
- Bingham, H.B. and Ducasse, D. and Nielsen, K. and Read, R. (2015). Hydrodynamic analysis of Oscillating Water Column, Wave Energy Devices. *J. Ocean Eng. Mar. Energy* **1(4)**, 405–419.
- Nielsen, K. and Bingham, H.B. (2015). MARINET experiment KNSWING testing an I-Beam OWC attenuator. *Intern. J. Marine Energy* **12**, 21–34J.
- Paulsen, B.T, Bredmose, H., Bingham H.B. and Jacobsen, N.G. (2014). Forcing of a bottom-mounted circular cylinder by steep regular water waves at finite depth *J. Fluid Mech.* **86**, 57–76.
- Ducrozet, G., Engsig-Karup, A.P., Bingham, H.B. and Ferrant, P. (2014). A non-linear wave decomposition model for efficient wave-structure interaction. Part A: Formulation, validations and analysis. *J. of Comp. Physics* **257**, 863–883.
- Yang, Z., Liu, S., Bingham, H.B. and Li, J. (2014). Second-order coupling of numerical and physical wave tanks for 2D irregular waves. PartII: Experimental validation in two-dimensions. *Coastal Engineering* **92**, 61–74.
- Yang, Z., Liu, S., Bingham, H.B. and Li, J. (2014). Second-order coupling of numerical and physical wave tanks for 2D irregular waves. PartI: Formulations, implementation and numerical properties. *Coastal Engineering* **92**, 48–60.
- Paulsen, B.T, Bredmose, H. and Bingham H.B. (2014). An efficient domain decomposition strategy for wave loads on surface piercing circular cylinders. *Coastal Engineering* **86**, 57–76.
- Yang, Z., Liu, S. and Bingham, H.B. (2013). Second-order theory for coupling 2D numerical and physical wave tanks: Derivation, evaluation and experimental validation. *Coastal Engineering* **71**, 37–51.
- Ducrozet, G., Bingham, H.B., Engsig-Karup, A.P., Bonnefoy, and Ferrant, P. (2012). A comparative study of two fast nonlinear free surface water wave models. *International Journal for Numerical Methods in Fluids* **69**, 1818–1834.
- Joncquez, S.A., Andersen, P. and Bingham, H.B. (2012). A Comparison of Methods for Computing the Added Resistance. *J. Ship Research* **56**, 106–119, 2012.
- Naserizadeh, R., Bingham, H.B. and Nourzad, A. (2011). A coupled boundary element-finite difference solution of the elliptic modified mild slope equation. *Eng. Analysis with Boundary Elements* **35**, 25–33.

- S. Kontos, H.B. Bingham, O. Lindberg and A.P. Engsig-Karup. (2015). WENO scheme discretization of the forward speed seakeeping problem. *9th International Workshop on Ship motions and Marine Hydro.*, Glasgow, UK. Strathclyde U. M. Amini Afshar, H.B. Bingham and R. Read. (2015). A high-order finite-difference linear seakeeping solver tool for calculation of added resistance in waves. *29th International Workshop on Water Waves and Floating Bodies*, Bristol, UK. Available from: <http://www.iwwwfb.org>.
- Bingham, H.B., M. Amini Afshar, R. Read and A.P. Engsig-Karup. (2014). Stable Finite Difference Discretizations of the Forward Speed Seakeeping Problem. *29th International Workshop on Water Waves and Floating Bodies*, Osaka, Japan. Available from: <http://www.iwwwfb.org>.
- Amini Afshar, M., H.B. Bingham, and R. Read. (2014). A high-order finite-difference solver for the linearised potential flow wave resistance problem on curvilinear overset grids. *29th International Workshop on Water Waves and Floating Bodies*, Osaka, Japan. Available from: <http://www.iwwwfb.org>.
- Lindberg, O., H.B. Bingham, and A.P. Engsig-Karup. (2014). Towards Real Time Simulation of Ship-Ship Interaction -Part III: Immersed Body Boundary Condition and Double Body Ship-Ship Interaction. *29th International Workshop on Water Waves and Floating Bodies*, Osaka, Japan. Available from: <http://www.iwwwfb.org>.
- Bingham, H.B., M. Amini Afshar. (2013). A note on added resistance for slow ships *28th International Workshop on Water Waves and Floating Bodies*, Marseille, France. Available from: <http://www.iwwwfb.org>.
- Christiansen, T.B., A.P. Engsig-Karup and H.B. Bingham. (2013). Hybrid-spectral model for fully nonlinear numerical wave tank *28th International Workshop on Water Waves and Floating Bodies*, Marseille, France. Available from: <http://www.iwwwfb.org>.
- Lindberg, O., S.L. Glimberg, H.B. Bingham, and A.P. Engsig-Karup and P.J. Schjeldahl. (2013). Towards Real Time Simulation of Ship-Ship Interaction -Part II: Double Body Flow Linearization and GPU Implementation. *28th International Workshop on Water Waves and Floating Bodies*, Osaka, Japan. Available from: <http://www.iwwwfb.org>.
- Paulsen, B.T., H. Bredmose and H.B. Bingham. (2013). Focused wave impact on a vertical cylinder: Experiment, numerical reproduction and a note on higher harmonics *28th International Workshop on Water Waves and Floating Bodies*, Osaka, Japan. Available from: <http://www.iwwwfb.org>.
- Yang, Z.W., H.B. Bingham and Liu, S.X. (2013). Wave simulation in a 3D coupled numerical and physical wave basin *28th International Workshop on Water Waves and Floating Bodies*, Osaka, Japan. Available from: <http://www.iwwwfb.org>.
- Christiansen, T.R.B., Bingham, H.B. and Engsig-Karup, A.P. (2013). Efficient Hybrid-Spectral Model for Fully Nonlinear Numerical Wave Tank. *Proceedings of 32st International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France.
- Paulsen, B.T., Schløer, S., Bredmose, H. and Bingham, H.B. (2013). Steep wave loads from irregular waves on an offshore wind turbine foundation: Computation and experiment *Proceedings of 32st International Conference on Ocean, Offshore and Arctic Engineering*, Nantes, France.
- Read, R., and Bingham, H.B. (2012). Solving the linear radiation problem using a volume method on an overset grid. *27th International Workshop on Water Waves and Floating Bodies*, Copenhagen Denmark, 2012. Available from: <http://www.iwwwfb.org>.
- Lindberg, O., Bingham, H.B., Engsig-Karup, A.P and Madsen, P.A. (2012). Towards Real Time Simulation of Ship-Ship Interaction. *27th International Workshop on Water Waves and Floating Bodies*, Copenhagen Denmark, 2012. Available from: <http://www.iwwwfb.org>.
- Paulsen, B.T., Bredmose, H. and Bingham, H.B. (2012). Accurate computation of wave loads on a bottom fixed circular cylinder. *27th International Workshop on Water Waves and Floating Bodies*, Copenhagen Denmark, 2012. Available from: <http://www.iwwwfb.org>.
- Lindberg, O., Bingham, H.B. and Engsig-Karup, A.P. (2012). A Coupled Finite Difference and Moving Least Squares Simulation of Violent Breaking Wave Impact. *Proceedings of 31st International Conference on Ocean, Offshore and Arctic Engineering*, Rio de Janeiro, Brazil.

Engsig-Karup, A.P., Lindberg, O., Glimberg, S.L., Dammann, B., Bingham, H.B. and P.A. Madsen (2012). A High-Order WENO Finite Difference Water Wave Model for Interactive Ship-Wave Simulation. *International Conference on Spectral and High Order Methods (ICOSAHOM 2012)*, Gammarth, Tunisia.

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Christiansen, T.R.B., Engsig-Karup, A.P., Bingham, H.B. and Ducrozet, G. (2012). Efficient Pseudo-Spectral Model for Free Surface Nonlinear Water Waves. *International Conference on Spectral and High Order Methods (ICOSAHOM 2012)*, Gammarth, Tunisia.

Schløer, S., Bredmose, H., Bingham, H.B. and Larsen, T.J. (2012). Effects from fully nonlinear irregular wave forcing on the fatigue life of an offshore wind turbine and its monopile foundation. *Proceedings of 31st International Conference on Ocean, Offshore and Arctic Engineering*, Rio de Janeiro, Brazil.

Christiansen, T.R.B., Bingham, H.B. and Engsig-Karup, A.P. (2012). High-order Finite Difference Solution of Euler Equations for Nonlinear Water Waves. *Proceedings of 31st International Conference on Ocean, Offshore and Arctic Engineering*, Rio de Janeiro, Brazil.

Bingham, H.B., and T.R.B. Christiansen. (2011). High-order finite difference solution of the Euler equations for nonlinear waves. 26th *International Workshop on Water Waves and Floating Bodies*, Athens, Greece. Available from: <http://www.iwwwf.org>.

Read, R., and H.B. Bingham. (2011). Linear wave-structure interaction using overset grids. 26th *International Workshop on Water Waves and Floating Bodies*, Athens, Greece. Available from: <http://www.iwwwf.org>.

Schløer, S., H. Bredmose, and H.B. Bingham. (2011). Irregular Wave Forces on Monopile Foundations. Effect of Full Nonlinearity and Bed Slope. *Proceedings of 30th International Conference on Ocean, Offshore and Arctic Engineering*, Rotterdam, The Netherlands.