MOLIN Bernard
Born: 23-7-1952
Nationality: French

PERSONAL ADDRESS

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PROFESSIONAL ADDRESSES

• Ecole Centrale Marseille
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• Institut de Recherche sur les Phénomènes Hors Equilibre (IRPHE UMR 7342)
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EDUCATION

Graduate from Ecole Polytechnique of Paris (1974)
Master of Science in Naval Architecture (U.C. Berkeley, 1975)
Doctor of Engineering (ENSM Nantes, 1981)
'Habilité à Diriger les Recherches' (Aix-Marseille II, 1996)

SYNOPSIS OF PROFESSIONAL EXPERIENCE

1975-1981: Research engineer within the Marine Engineering Division of 'Institut Français du Pétrole' (IFP)
1981-1982: Sabbatical leave at the Ship Research Institute of Japan (Tokyo)
1982-1994: Project manager of IFP project 'Hydrodynamics of Structures at Sea'
1991-1994: Scientific Adviser at Bassin d'Essais des Carènes in Val de Reuil.
1994-2004: Professor at the Ocean Engineering Department of 'Ecole Supérieure d'Ingénieurs de Marseille' (ESIM).
1994-2010: Scientific adviser at Principia R.D.
2004-2016: Professor at 'Ecole Centrale de Marseille'.
2008-2016: Member of the 'Comité de la Recherche' of GTT (GazTransport & Technigaz).
2009-on: Chief editor of *Applied Ocean Research*.
2017-on: Emeritus professor at 'Ecole Centrale de Marseille'.
2017-2019: Collaborator with Bureau Veritas.
2017-on: 10% Adjunct professor at NTNU (Trondheim, Norway).

Research activities have been mainly concerned with nonlinear hydrodynamics (drift forces, slow drift motion, high frequency loads and response), and development of computer models for the French offshore industry. Recent involvement has included hydrodynamics of perforated structures, Vortex Induced Vibrations and galloping, slamming, moonpool resonances, hydroelastic responses, run-up effects, slow-drift excitation in variable depth and sloshing in tanks.

RECENT/ONGOING COLLABORATIONS/SUBCONTRACTING

- Universities: NTNU (Norwegian University of Science and Technology, Trondheim), UWA (University of Western Australia, Perth).
- Industry: TotalEnergie, Bureau Veritas, Technicatome, Principia, GazTransport & Technigaz (GTT)TechnipFMC, TechnipEnergie, Saipem, SBM Offshore, EDF Renewables, Principle Power, Ideol, Océanide.

DISTINCTIONS

22nd Georg Weinblum Memorial Lecturer (1999-2000).
Emile Girardeau prize from 'Académie de Marine' (2014).
ASME Lifetime Achievement Award, OOAE Division (2018).

PUBLICATIONS

Book

'*Hydrodynamique des structures offshore*', Editions Technip, 2002 (in French and in Chinese).

Journals

1. 'Second-order diffraction loads upon three-dimensional bodies', *Applied Ocean Research*, **1**, 1979.
2. 'Effect of wave directionality on second-order loads induced by the set-down', *Applied Ocean Research*, **6**, 1984 (with V. Fauveau).
3. 'Comportements non-linéaires des structures flottantes dans la houle', *la Houille Blanche*, **4-5**, 1986 (with C. Berhault).
4. 'Hydrodynamique des plates-formes semi-submersibles', *Revue de l'Institut Français du Pétrole*, **43** 1988 (with C. Berhault).
5. 'Un point sur la recherche française en hydrodynamique navale, à l'occasion des Deuxièmes Journées de l'Hydrodynamique', *Revue Scientifique et Technique de la Défense*, 1989 (with C. Berhault, R. Cointe, G. Delhommeau, G. Fernandez and P. Sulmont).
6. 'A potential flow model for the drag of shrouded cylinders', *J. Fluids and Structures*, **7**, 29–38, 1993.
7. 'An heuristic approach to wave drift damping', *Applied Ocean Research*, **15**, 1993 (with P. Clark and Š. Malenica).
8. 'Second-order hydrodynamics applied to moored structures. A state-of-the-art survey', *Ship Technology Research (Schiffstechnik)*, **41**, 1993.
9. 'Third-harmonic wave diffraction by a vertical cylinder', *J. Fluid Mechanics*, **302**, 203–229, 1995 (with Š. Malenica).
10. 'Wave and current forces on a vertical cylinder free to surge and sway', *Applied Ocean Research*, **17**,79–90, 1995 (with Š. Malenica and P.J. Clark).
11. 'Nonlinear wave loads and runup on a vertical cylinder', chapter in *Nonlinear Water Wave Interaction*, Advances in Fluid Mechanics, WIT Press, Computational Mechanics Publications, 1999 (with P. Ferrant and Š. Malenica).
12. 'Numerical and physical wavetanks. Making them fit', 22nd Memorial George Weinblum Lecture, Hamburg, 1999 (published in *Ship Technology Research*, **48**, 2–22, 2001).
13. 'On viscous forces on non-circular cylinders in low KC oscillatory flows', *European J. Mechanics-B/Fluids*, **19**, 453–457, 2000 (with S. Etienne).
14. 'On the added mass and damping of periodic arrays of fully or partially porous disks', *J. Fluids and Structures*, **15**, 275–290, 2001.
15. 'On the piston and sloshing modes in moonpools', *J. Fluid Mechanics*, **430**, 27–50, 2001.
16. 'Experimental and theoretical analysis of the wave decay along a long array of vertical cylinders', *J. Fluid Mechanics*, **456**, 113–135, 2002 (with H. Kagemoto, M. Murai, M. Saito & Š. Malenica).
17. 'Experimental study of the wave propagation and decay in a channel through a rigid ice sheet', *Applied Ocean Research*, **24**, 247–260, 2002 (with F. Remy, O. Kimmoun & Y. Stassen).
18. 'On the frictional damping in roll of ship sections', *International Shipbuilding Progress*, **51**, 57–83, 2004.
19. 'On energy arguments applied to the hydrodynamic impact force', *Journal of Engineering Mathematics*, **48**, 305–319, 2004 (with R. Cointe, E. Fontaine & Y-M. Scolan).

20. 'The role of tertiary wave interactions in wave-body problems', *J. Fluid Mech.*, **528**, 323–354, 2005 (with F. Remy, O. Kimmoun & E. Jamois).
21. 'Les effets non-linéaires en interaction houle-structure et leur modélisation', *Mécanique et Industries*, **7**, 169–177, 2006.
22. 'Nonlinear wave amplification in front of reflective structures', *Eur. J. Mech. B-Fluids*, **25**, 565–573, 2006 (with E. Jamois, F. Remy & O. Kimmoun).
23. 'A numerical study of nonlinear wave runup on a vertical plate', *Coastal Eng.*, **53**, 929–945, 2006 (with E. Jamois, D. Fuhrman & H. Bingham).
24. 'Second-order wave interaction with a vertical plate', *J. Nicholas Newman Honorary Volume* (also in *J. Eng. Math.*, **58**, 109–119, 2006) (with F. Remy & O. Kimmoun).
25. 'Spacing effects on hydrodynamics of heave plates on offshore structures', *J. Fluids & Structures*, **23**, 1119–1136, 2007 (with L. Tao, Y.-M. Scolan & K. Thiagarajan).
26. 'A coupling method between extended Boussinesq equations and the integral equation method with application to a two-dimensional numerical wave-tank', *Ocean Engineering*, **36**, 1377–1385, 2009 (with M. Hamidou, M. Kadri, O. Kimmoun & A. Tahakourt).
27. 'Experimental and numerical study of the wave runup along a vertical plate', *J. Fluid Mech.*, **654**, 363–386, 2010 (with O. Kimmoun, Y. Liu, F. Remy & H.B. Bingham).
28. 'Hydrodynamic modeling of perforated structures', *Applied Ocean Research*, **33**, 1–11, 2011.
29. 'Experimental and numerical study of the effect of variable bathymetry on the slow-drift wave response of floating bodies', *Applied Ocean Research*, **33**, 199–207, 2011 (with Y.N. Liu, O. Kimmoun, F. Remy & M.-C. Rouault).
30. 'Third-order interactions, wave run-up and hydrodynamic loading on a vertical plate in an infinite wave field', *Applied Ocean Research*, **41**, 57–64, 2013 (with I.K. Chatjigeorgiou).
31. 'Experimental and numerical study of the sloshing motion in a rectangular tank with a perforated screen', *J. Fluids & Structures*, **43**, 463–480, 2013 (with F. Remy).
32. 'Third-order effects in wave-body interaction', *European Journal of Mechanics B/Fluids*, **47**, 132–144, 2014 (with O. Kimmoun, F. Remy & I.K. Chatjigeorgiou).
33. 'Inertia effects in TLD sloshing with perforated screens',*J. Fluids & Structures*, **59**, 165–177, 2015 (with F. Remy).
34. 'Numerical and experimental study of an invisiblity carpet in a water channel', *Physical Review E* **91** 023010, 2015 (with G. Dupont, O. Kimmoun, S. Guenneau & S. Enoch).
35. 'On the dispersion equation for waves traveling through or over dense arrays of vertical cylinders', *Applied Ocean Res.*, **61**, 148–155, 2016 (with F. Remy, G. Arnaud, V. Rey, J. Touboul & D. Sous).
36. 'On natural modes in moonpools with recesses', *Applied Ocean Res.*, **67**, 1–8, 2017.
37. 'On natural modes in moonpools and gaps in finite depth', 2018 *J. Fluid Mech.*, **840**, 530-544 (with X. Zhang, H. Huang & F. Remy).
38. 'A two-dimensional numerical and experimental study of piston mode resonance in moonpools with recess', *J. Fluid Mech.*, **877**, 142–166, 2019 (with S. Ravinthrakumar, T. Kristiansen & B. Ommani).
39. 'Group dynamics and wave resonances in a narrow gap: modes and reduced group velocity', 2020 *J. Fluid Mech.*, **883**, A22 (with W. Zhao, P.H. Taylor, H.A. Wolgamot & R. Eatock Taylor).
40. 'An upright bottomless vertical cylinder with baffles floating in waves', 2022, *Applied Ocean Research*, 119, 102934 (with M. Moreau, T. Kristiansen & B. Ommani).
41. 'Nonlinear harmonics of gap fluid resonance with floating body motions', 2022, to appear in J. Fluid Mech. (with W. Zhao, Y. Wang, H.A. Wolgamot & P.H. Taylor).