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Educational record:

2017: Habilitation à Diriger des Recherches (Ability to conduct research), Université Paris-Est.

2011: Doctor of Philosophy, Department of Ocean Engineering, University of Rhode Island.

2007: Master of Science, Department of Ocean Engineering, University of Rhode Island.

2003: Bachelor of Science, Department of Oceanography, University of Washington.

2003: Bachelor of Science, Department of Mathematics, University of Washington.

2000: Associate of Arts and Science, Department of Mathematics, Everett Community College.

Professional Experience:

2015– : Research Associate (*chargé de recherche*), Saint-Venant Hydraulics Laboratory, Ecole des Ponts ParisTech. Marne-la-Vallée, France.

2012–2014 : Postdoctoral researcher, Saint-Venant Hydraulics Laboratory, Ecole des Ponts ParisTech. Marne-la-Vallée, France.

2010–2012 : Postdoctoral researcher, Department of Ocean Engineering, University of Rhode Island. Narragansett, RI, United States

Journal Publications

R. Corniglion, **J. C. Harris**, and C. Peyrard. The aerodynamics of a blade pitch, rotor speed, and surge step for a wind turbine regarding dynamic inflow. *Wind Energy*. 27 pp. (in revisions)

J. C. Harris, E. Dombre, M. Benoit, S. T. Grilli, and K. Kuznetsov. Nonlinear time-domain wave-structure interaction: a parallel fast integral equation approach. *International Journal for Numerical Methods in Fluids*. 50 pp. (in revisions)

M. Ferrand and **J. C. Harris**. 2021. Finite volume Arbitrary Lagrangian-Eulerian schemes using dual meshes for ocean wave applications. *Computers and Fluids*. 219: 104860, 16 pp. doi: 10.1016/j.compfluid.2021.104860.

S. Abadie, A. Paris, R. Ata, S. Le Roy, G. Arnaud, A. Poupardin, L. Clous, P. Heinrich, **J. C. Harris**, R. Pedreros, and Y. Krien. 2020. La Palma landslide tsunami: calibrated wave source and assessment of impact on French territories. *Natural Hazards and Earth System Sciences*. 20: 3019-3038. doi: 10.5194/nhess-20-3019-2020.

E. Dombre, **J. C. Harris**, M. Benoit, D. Violeau, and C. Peyrard. 2019. A 3D parallel boundary element method on unstructured triangular grids for fully nonlinear wave-body interactions. *Ocean Engineering*. 171: 505-518.

J. C. Harris and L. Decker. 2017. Intermittent large amplitude internal waves in Port Susan, Puget Sound. *Estuarine, Coastal and Shelf Science*. 194: 141-149. doi: 10.1016/j.ecss.2017.04.022.

- B. Tehranirad, **J. C. Harris**, A. R. Grilli, S. T. Grilli, S. Abadie, J. T. Kirby, and F. Shi. 2015. Far-field tsunami hazard in the north Atlantic basin from large scale flank collapses of the Cumbre Vieja volcano, La Palma. *Pure and Applied Geophysics*. 172: 3589-3616. doi: 10.1007/s00024-015-1135-5.
- S. T. Grilli, C. O'Reilly, **J. C. Harris**, T. Tajalli Bakhsh, B. Tehranirad, S. Banihashemi, J. T. Kirby, C. D. Baxter, T. Eggeling, G. Ma, and F. Shi. 2015. Modeling of SMF tsunami hazard along the upper US East Coast: Detailed impact around Ocean City, MD. *Natural Hazards*. 76: 705-746. doi: 10.1007/s11069-014-1522-8.
- D. R. Tappin, S. T. Grilli, **J. C. Harris**, R. J. Geller, T. Masterlark, J. T. Kirby, F. Shi, G. Ma, K. K. S. Thingbaijam, and P. M. Mai. 2014. Did a submarine landslide contribute to the 2011 Tohoku tsunami? *Marine Geology*. 357: 344-361. doi: 10.1016/j.margeo.2014.09.043.
- J. C. Harris** and S. T. Grilli. 2014. Large eddy simulation of sediment transport over rippled beds. *Nonlinear Processes in Geophysics*. 21: 1169-1184. doi: 10.5194/npg-21-1169-2014.
- J. T. Kirby, F. Shi, B. Tehranirad, **J. C. Harris**, and S. T. Grilli. 2013. Dispersive tsunami waves in the ocean: Model equations and sensitivity to dispersion and Coriolis effects. *Ocean Modelling*. 62: 39-55. doi:10.1016/j.ocemod.2012.11.009.
- S. T. Grilli, **J. C. Harris**, T. Tajalli Bakhsh, T. L. Masterlark, C. Kyriakopoulos, J. T. Kirby, and F. Shi. 2013. Numerical simulation of the 2011 Tohoku tsunami based on a new transient FEM co-seismic source: comparison to far- and near-field observations. *Pure and Applied Geophysics*. 27 pp. doi:10.1007/s00024-012-0528-y.
- F. Shi, J. T. Kirby, **J. C. Harris**, J. D. Geiman, and S. T. Grilli. 2012. A high-order adaptive time-stepping TVD solver for Boussinesq modeling of breaking waves and coastal inundation. *Ocean Modelling*. 43-44: 36-51, doi:10.1016/j.ocemod.2011.12.004.
- J. C. Harris** and S. T. Grilli. 2012. A perturbation approach to large-eddy simulation of wave-induced bottom boundary layer flows. *International Journal for Numerical Methods in Fluids*. 68: 1574-1604, doi:10.1002/fld.2553.
- S. Abadie, **J. C. Harris**, S. T. Grilli, and R. Fabre. 2012. Numerical modeling of tsunami waves generated by the flank collapse of the Cumbre Vieja Volcano (La Palma, Canary Islands): tsunami source and near field effects. *Journal of Geophysical Research*. 117: C05030, doi:10.1029/2011JC007646.

Refereed Conference Publications

- R. Corniglion, **J. C. Harris**, C. Peyrard, M. Capaldo. 2020. Comparison of the free vortex wake and actuator line methods to study the loads of a wind turbine in imposed surge motion. In *Proceedings of European Academy of Wind Energy Torque Conference (TORQUE2020)*. Journal of Physics: Conference Series 1618, 052045. doi:10.1088/1742-6596/1618/5/052045
- C. Peyrard, M. Capaldo, S. Saviot and **J. C. Harris**. 2019. A methodology to estimate the risk of ringing on offshore wind turbine Gravity Based Foundations. In *Proceedings of the 27th Offshore and Polar Engineering Conference (ISOPE19)*. Honolulu, USA. (June 2019), 8 pp.
- K. Konstantin, **J. C. Harris**, L. Asmar, N. Germain, F. Aristodemo. 2018. Modification of a Wake model for hydrodynamic forces on submarine cables with a rough seabed. In *Proceedings of the 16th Journées de l'Hydrodynamique*. (Marseille, France, November 2018), 12 pp.
- Harris, J.C.**, O'Reilly, C.M., Mivehchi, A., Kuznetsov, K., Janssen, C.F., Grilli, S.T. and J.M., Dahl. 2018. Hybrid modeling of wave structure interaction with overlapping viscous-inviscid domains. In *Proceedings of 33rd Intl. Workshop Water Waves and Floating Bodies (IWWWFB18, Guidel-Plages, France, April 4-7, 2018)*, 4 pp.

- A. Mivehchi, **J. C. Harris**, S. T. Grilli, J. M. Dahl, C. M. O'Reilly, K. Kuznetsov and C. F. Janssen. 2017. A hybrid solver based on efficient BEM-potential and LBM-NS models: recent BEM developments and applications to naval hydrodynamics. In *Proceedings of the 27th Offshore and Polar Engineering Conference (ISOPE17)*. San Francisco, USA. (June 2017), 8 pp.
- C. M. O'Reilly, S. T. Grilli, **J. C. Harris**, A. Mivehchi, C. F. Janssen and J. M. Dahl. 2017. A Hybrid Solver Based on Efficient BEM-potential and LBM-NS Models: Recent LBM Developments and Applications to Naval Hydrodynamics. In *Proceedings of the 27th Offshore and Polar Engineering Conference (ISOPE17)*. San Francisco, USA. (June 2017), 8 pp.
- J. C. Harris**, K. Kuznetsov, C. Peyrard, A. Mivehchi, S. T. Grilli and M. Benoit. 2017. Simulation of wave forces on a gravity based foundation by a BEM based on fully nonlinear potential flow. In *Proceedings of the 27th Offshore and Polar Engineering Conference (ISOPE17)*. San Francisco, USA. (June 2017), 8 pp.
- C. M. O'Reilly, S. T. Grilli, **J. C. Harris**, A. Mivehchi, C. F. Janssen and J. Dahl. 2016. Development of a hybrid LBM-potential flow model for Naval Hydrodynamics. In *Proceedings of the 15th Journées de l'Hydrodynamique*. (Brest, France, November 2016), 15 pp.
- J. C. Harris**, Dombre E., Mivehchi A., Benoit M., Grilli S. T. and C. Peyrard. 2016. Progress in fully nonlinear wave modeling for wave-structure interaction. In *Proceedings of the 15th Journées de l'Hydrodynamique*. (Brest, France, November 2016), 12 pp.
- A. Abdolali, J. T. Kirby, G. Bellotti, S. T. Grilli, and **J.C. Harris**. 2015. Hydro-acoustic Wave Generation During the Tohoku-oki 2011 Earthquake. In *Proceedings of 2015 COPRI Solutions to Coastal Disasters Conference* (Boston, USA. September 9-11, 2015), American Soc. Civil Eng., 12 pp.
- J. C. Harris**, E. Dombre, M. Benoit, and S. T. Grilli. 2014. A comparison of methods in fully nonlinear boundary element numerical wave tank development. In *Proceedings of the 14th Journées de l'Hydrodynamique*. (Val de Reuil, France, November 2014), 13 pp.
- L. Letournel, **J. C. Harris**, P. Ferrant, A. Babarit, G. Ducrozet, E. Dombre, and M. Benoit. 2014. Comparison of fully nonlinear and weakly nonlinear potential flow solvers for the study of wave energy converters undergoing large amplitude motions. In *Proceedings of the 33rd International Conference on Ocean, Offshore and Arctic Engineering*. (San Francisco, USA, June 2014), paper 23912, 10 pp. doi:10.1115/OMAE2014-23912
- J. C. Harris**, E. Dombre, M. Benoit, and S. T. Grilli. 2014. Fast integral equation methods for fully nonlinear water wave modeling. In *Proceedings of the 24th International Offshore and Polar Engineering Conference (ISOPE2014)*. (Busan, Korea, June 2014), 583-590.
- S. T. Grilli, **J. C. Harris**, J. T. Kirby, F. Shi, G. Ma, T. Masterlark, D. R. Tappin, and T. Tajalli Bakhsh. 2013. On the dispersive modeling of the 2011 Tohoku tsunami generation by coseismic/SMF processes, and near- and far-field impact. In *Proceedings of the 27th International Workshop on Water Waves and Floating Bodies*. (L'isle sur la Sorgue, France, April 2013) (ed. B. Molin, O. Kimmoun, F. Remy), pp. 77-80, Ecole Centrale de Marseilles.
- S. T. Grilli, **J. C. Harris**, J. T. Kirby, F. Shi, G. Ma, T. Masterlark, D. R. Tappin and T. Tajalli Bakhsh. 2013. Modeling of the Tohoku-Okii 2011 tsunami generation, far-field and coastal impact: a mixed co-seismic and SMF source. In *Proceedings of the 7th International Conference on Coastal Dynamics* (Arcachon, France, June 2013) (ed. P. Bonneton), paper 068, 749-758.
- S. T. Grilli, **J. C. Harris**, T. Tajalli Bakhsh, J. T. Kirby, F. Shi, T. Masterlark, and C. Kyriakopoulos. 2012. Numerical simulation of the 2011 Tohoku tsunami: Comparison with field observations and sensitivity to model parameters. In *Proceedings of the 22nd International Offshore and Polar Engineering Conference (ISOPE2012)*. Rodos, Greece. (June 2012). pp. 6-13.

- J. C. Harris**, S. T. Grilli, and S. Abadie, T. Tajalli Bakhsh. 2012. Near- and far-field tsunami hazard of the potential flank collapse of the Cumbre Vieja Volcano. In *Proceedings of the 22nd International Offshore and Polar Engineering Conference (ISOPE2012)*. Rodos, Greece. (June 2012). pp. 242-249.
- S. T. Grilli, **J. C. Harris**, F. Shi, J. T. Kirby, T. Tajalli Bakhsh, E. Estibals, and B. Tehranirad. 2012. Numerical modeling of coastal tsunami dissipation and impact. In *Proceedings of the 33rd International Conference on Coastal Engineering (ICCE2012)*. Santander, Spain. (July 2012). 12 pp.
- J. C. Harris**, S. T. Grilli, and S. Abadie. 2012. Numerical simulation of the tsunami generated by the Cumbre Vieja flank collapse (La Palma, Canary) by a coupled Navier-Stokes/Boussinesq approach. In *Proceedings of the 13th Journées de l'Hydrodynamique*. (Chatou, France, November 2012), 13 pp.
- S. T. Grilli, **J. C. Harris**, T. Tajalli Bakhsh, D. R. Tappin, T. Masterlark, J. T. Kirby, F. Shi, and G. Ma. 2012. Recent progress in the nonlinear and dispersive modeling of tsunami generation and coastal impact: application to Tohoku 2011. In *Proceedings of the 13th Journées de l'Hydrodynamique*. (Chatou, France, November 2012), 16 pp.
- S. Abadie, **J. C. Harris**, and S. T. Grilli. 2011. Numerical simulation of tsunami generation by the potential flank collapse of the Cumbre Vieja Volcano. In *Proceedings of the 21st International Offshore and Polar Engineering Conference (ISOPE2011)*. Maui, HI, USA (June 2011). pp. 687-694.
- J. C. Harris** and S. T. Grilli. 2010. Coupling of NWT and large-eddy simulation for wave-induced sediment transport. In *Proceedings of the 20th International Offshore and Polar Engineering Conference (ISOPE2010)*. Beijing, China (June 2010). pp. 578-585.
- S. T. Grilli, **J. C. Harris**, and N. Greene. 2009. Modeling of wave-induced sediment transport around obstacles. In *Proceedings of the 31st International Coastal Engineering Conference*. Hamburg, Germany (Sept. 2008). World Scientific Publishing Co. Pte. Ltd. pp. 1638-1650.
- J. C. Harris** and S. T. Grilli. 2007. Computation of the wavemaking resistance of a Harley surface effect ship. In *Proceedings of the 17th International Offshore and Polar Engineering Conference (ISOPE07)*, Lisbon, Portugal (July 2007), pp. 3732-3739.

Non-Refereed Conference Publications and Abstracts

- S. Mohanlal, M. Yates, **J. C. Harris**. 2021. Depth-limited wave breaking dissipation in a potential flow code. BWAVES 2021 (Web conference), Abstract.
- C. O'Reilly, S. Grilli, **J. C. Harris**, A. Mivehchi, C. Janssen, J. M. Dahl. 2018. A hybrid nonlinear free surface model based on a lattice Boltzmann method coupled to a potential flow solver. Journées de l'Hydrodynamique, Abstract.
- Y. S. Park, **J. C. Harris**. 2018. Experimental and numerical study on breaking leading-depression waves. IAHR Europe, Abstract.
- S. T. Grilli, A. Mivehchi, C. M. O'Reilly, J. M. Dahl, **J. C. Harris**, K. Kuznetsov. 2018. On the absorption of breaking wave energy in fully nonlinear potential flow model. BWAVES 2018 (Marseille, France), Abstract.
- K. Kuznetsov, **J. C. Harris**, N. Germain, F. Aristodemo. 2018. Modification of a Wake model for hydrodynamic forces on submarine cables with a rough seabed. EGU General Assembly 2018 (Vienna, Austria), Abstract EGU2018-19847-1.
- K. Kuznetsov, **J. C. Harris**, C. Peyrard, A. Mivehchi, S. Grilli, M. Benoit. 2018. Development of numerical wave tank using boundary element method with cubic B-splines. EGU General Assembly 2018 (Vienna, Austria), Abstract EGU2018-19842.
- K. Kuznetsov, **J. C. Harris**, N. Germain, F. Aristodemo. 2018. Modification of a Wake model for hydrodynamic forces on submarine cables with a rough seabed. Code_Saturne User's Meeting.

- A. Mivehchi, S. T. Grilli, J. M. Dahl, C. M. O'Reilly, **J. C. Harris**, K. Kuznetsov, C. F. Janssen. 2017. Hybrid fully nonlinear BEM-LBM numerical wave tank with applications in naval hydrodynamics. 70th Annual Meeting of the APS Division of Fluid Dynamics, Abstract.
- J. C. Harris**. 2017. Arbitrary Lagrangian-Eulerian ocean wave modeling at laboratory and field scale. Code_Saturne User's Meeting.
- J. C. Harris**. 2016. Evaluation of water wave modeling with an arbitrary Lagrangian-Eulerian approach. Code_Saturne User's Meeting.
- T. Insua, A. R. Grilli, S. T. Grilli, M. Shelby, K. Wang, D. Gao, J. Cherniawsky, **J. C. Harris**, M. Heesemann, S. McLean, and K. Moran. 2015. Preliminary tsunami hazard assessment in British Columbia, Canada. EOS Trans. AGU, 96 (52), Fall Meet. Suppl., Abstract.
- A. Abdolali, J. T. Kirby, G. Bellotti, S. T. Grilli, and **J. C. Harris**. 2015. Hydro-acoustic wave generation during the Tohoku-oki 2011 earthquake. Solutions to Coastal Disasters Conference, September 2015
- J. C. Harris**, E. Dombre, M. Benoit, and S. T. Grilli. 2013. Improving the efficiency of water wave modeling based on boundary element method by using parallel processing and fast multipole method. 5th GACM Colloquium on Computational Mechanics, September-October 2013.
- D. Tappin, S. T. Grilli, **J. C. Harris**, R. J. Grilli, T. Masterlark, J. T. Kirby, G. Ma, and F. Shi. 2013. Earthquake and submarine landslide tsunamis: how can we tell the difference? AGU Fall Meeting 2013 (December 2013), Abstract NH51D-03.
- D. Tappin, S. T. Grilli, **J. C. Harris**, T. Masterlark, J. T. Kirby, F. Shi, and G. Ma. 2013. Differentiating earthquake tsunamis from other sources; how do we tell the difference? EGU General Assembly 2013 (7-12 April, 2013, Vienna, Austria), Abstract EGU2013-10211.
- S. T. Grilli, **J. C. Harris**, D. Tappin, T. Masterlark, J. T. Kirby, F. Shi and G. Ma. 2012. Did submarine mass failures significantly contribute to the extreme runup of the Tohoku-oki 2011 tsunami in Sanriku. EOS Trans. AGU, 93 (52), Fall Meet. Suppl., Abstract NH43B-1655.
- S. T. Grilli, **J. C. Harris**, D. R. Tappin, T. Masterlark, J. T. Kirby, F. Shi and G. Ma. 2012. Modeling of the Tohoku-oki 2011 tsunami coastal hazard: effects of a mixed co-seismic and seabed failure source. EOS Trans. AGU, 93 (52), Fall Meet. Suppl., Abstract NH42A-06.
- T. Masterlark, S. T. Grilli, D. R. Tappin, **J. C. Harris**, and J. T. Kirby. 2012. Seafloor deformation and localized source Mechanisms of the 2011 M9 Tohoku Earthquake and tsunami. EOS Trans. AGU, 93 (52), Fall Meet. Suppl., Abstract NH41C-03.
- T. Tajalli Baksh, S. T. Grilli, **J. C. Harris**, J.T. Kirby, F. Shi and B. Tehranirad. 2012. Tsunami hazard assessment along the US east coast. EOS Trans. AGU, 93 (52), Fall Meet. Suppl., Abstract NH-31D-08.
- B. Tehranirad, J. T. Kirby, F. Shi, J. A. Callahan, **J. C. Harris**, S. T. Grilli and T. Tajalli Bakhsh. 2012. Tsunami hazards on the US east coast : Inundation Mapping and Tsunami Process over a wide shelf. EOS Trans. AGU, 93 (52), Fall Meet. Suppl., Abstract NH33A-1645.
- T. Masterlark, S. T. Grilli, **J. C. Harris**, C. Kyriakopoulos and W. Tao. 2011. Coseismic deformation of the 2011 M9 Tohoku Earthquake inverted from geodetic data using FEMs: Implications for tsunami genesis and poroelastic stress-coupling. EOS Trans. AGU, 92 (52), Fall Meet. Suppl., Abstract U15B-0022.
- S. T. Grilli, **J. C. Harris**, T. Tajalli Bakhsh, J.T. Kirby, F. Shi, T. Masterlark T. and C. Kyriakopoulos. 2011. Numerical simulations of the 2011 Tohoku tsunami generation, propagation and coastal impact: comparison to field observations, with sensitivity analysis to co-seismic source parameters, model type and resolution. EOS Trans. AGU, 92 (52), Fall Meet. Suppl., Abstract NH11A-1359.
- J. C. Harris** and S. T. Grilli. 2007. Validating a perturbation approach to the large eddy simulation of wave induced sediment transport, EOS Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H51I-0885.

Technical Reports

- J. C. Harris**, R. Amouzgar and N. Grivault. 2019. Co-seismic tsunami hazard assessment for Prince Rupert. Ocean Networks Canada. 42 pp.
- F. Shi, J. T. Kirby, B. Tehranirad, **J. C. Harris**, Y.-K. Choi and M. Malej. 2016. FUNWAVE-TVD: Fully nonlinear Boussinesq wave model with TVD solver, documentation and user's manual. (Version 3.0). University of Delaware Research Report. 89 pp.
- J. C. Harris** and L. Letournel. 2013. Progress report on the development of the non-linear and weak-scatterer numerical wavetanks. Technical Report for MONACOREV project, Agence Nationale de la Recherche. 27 pp.
- F. Shi, J. T. Kirby, B. Tehranirad, **J. C. Harris**, and S. T. Grilli. 2011. FUNWAVE-TVD: Fully non-linear Boussinesq wave model with TVD solver, documentation and user's manual. (Version 2.1). University of Delaware Research Report No. CACR-11-04. 77 pp.
- S. T. Grilli, T. Tajalli Bakhsh, and **J. C. Harris**. 2012. Coarse grid simulations of tsunami hazard along the Mozambique coast. Technical Report for Phase II. Ocean Engineering, University of Rhode Island, 22 pp.
- F. Shi, J. T. Kirby, B. Tehranirad, **J. C. Harris**, and S. T. Grilli. 2011. FUNWAVE-TVD: Fully non-linear Boussinesq wave model with TVD solver, documentation and user's manual. (Version 2.0). University of Delaware Research Report No. CACR-11-04. 81 pp.
- S. T. Grilli, T. Tajalli Bakhsh, A. R. Grilli, and **J. C. Harris**. 2012. Fine grid simulations of tsunami hazard along the Mozambique coast (pre-work). Technical Report for Phase III. Ocean Engineering, University of Rhode Island, 52 pp.
- B. Tehranirad, F. Shi, J. T. Kirby, **J. C. Harris**, and S. T. Grilli. 2011. Tsunami benchmark results for fully nonlinear Boussinesq wave model FUNWAVE-TVD, Version 1.0. University of Delaware Research Report No. CACR-11-02. 41 pp.
- F. Shi, J. T. Kirby, B. Tehranirad, **J. C. Harris**, and S. T. Grilli. 2011. FUNWAVE-TVD: Fully non-linear Boussinesq wave model with TVD solver, documentation and user's manual. (Version 1.0). University of Delaware Research Report No. CACR-11-04. 71 pp.
- S. T. Grilli, **J. C. Harris**, R. Sharma, L. Decker, D. Stuebe, D. Mendelsohn, D. Crowley, and S. Decker. 2010. High resolution modeling of meteorological, hydrodynamic, wave and sediment processes in SAMP study area. Final Technical Report for the Rhode Island Ocean Special Area Management Plan. Department of Ocean Engineering, University of Rhode Island. 107 pp.
- J. C. Harris** and S. T. Grilli. 2005. Storm surge / wave studies in support of siting a wave energy power plant at Point Judith, RI. Final Technical Report for RIREO Grant Phase II. Department of Ocean Engineering, University of Rhode Island. 19 pp.
- J. C. Harris** and S. T. Grilli. 2004. On the expected performance of 82 ft. prototype, Gladius. Internal Technical Report for Oceanic Inc. Grant. Department of Ocean Engineering, University of Rhode Island. 16 pp.

Datasets

- S. Abadie, A. Paris, R. Ata, S. Le Roy, G. Arnaud, A. Poupardin, L. Clous, P. Heinrich, **J. C. Harris**, R. Pedreros, and Y. Krien. 2019. La Palma landslide tsunami: computation of the tsunami source with a calibrated multi-fluid Navier-Stokes model and wave impact assessment with propagation models of different types. SEANOE. doi:/10.17882/61301

Fellowships:

2005–2008 : *National Defense Science and Engineering Graduate Fellowship*. Competitive (average 10% acceptance rate) 3-year NDSEG grant for Ph.D. students covering university fees and stipend (approx. 100k€) for independent research funded by the U.S. Office of Naval Research.

2002 : *Mary Gates Scholar at the University of Washington*. Competitive (average 33% acceptance rate) six-month undergraduate research supervised by Prof. John Sahr concerning antenna design with method of moments for passive VHF radar used in remote sensing of upper atmosphere.

2001 : *Woods Hole Oceanographic Institution (WHOI) Summer Student Fellow*. Competitive (average 12% acceptance rate) three-month research supervised by Dr. James Preisig concerning processing of surf zone acoustic propagation experiments.

Invited conference talks:

23 May 2019 : *On nonlinear time-domain wave-structure interaction*. Invited by Prof. Yanlin Shao for invited talk at the 2nd International Workshop on Marine Hydrodynamics Modelling in Harbin, China.

19 April 2017 : *Modeling of bottom-tilting wave maker with fully nonlinear potential flow*. Invited by Prof. Yong-Sung Park for invited talk and session chair at the Long Waves and Tsunamis Workshop in Dundee, Scotland, United Kingdom.

5 April 2017 : *Numerical modeling of wave energy converters with the boundary element method*. Invited by organizing committee of Basque Center for Applied Mathematics Workshop on Hydrodynamics of Wave Energy Converters to present plenary lecture, Bilbao, Spain.

External department seminars:

28 November 2019 : *Wave-structure interaction: Fully nonlinear potential flow and Navier-Stokes approaches*. Invited by Jean-François Filipot to present seminar at France Energies Marines. Brest, France.

17 May 2018 : *Combining nonlinear wave models with CFD using overlapping domains: applications to offshore structures and tsunamis*. Invited by Mario Ricchiuto to present Séminaire Calcul Scientifique et Modélisation, Insitut de Mathématiques de Bordeaux, department seminar at INRIA. Bordeaux, France.

2 May 2018 : *Faster solutions to the Laplace equation: applications to fluid dynamics and wave-structure interactions*. Invited by Boris Haspot to present Ange department seminar at INRIA. Paris, France.

25 April 2018 : *Coupling nonlinear wave models to Navier-Stokes and back again: applications to tsunamis and offshore structures*. Invited by Prof. Stéphane Abadie to present department seminar at Université de Pau et des Pays de l'Adour. Anglet, France.

3 March 2017 : *Numerical and experimental studies of nonlinear effects on surface and internal waves*. Invited by Prof. Michel Benoit to present department seminar at Institut de Recherche sur les Phénomènes Hors Equilibre. Marseille, France.

14 October 2015 : *Progress in nonlinear wave modeling with the boundary element method*. Invited by Prof. Yong-Sung Park to present department seminar in Department of Civil Engineering, University of Dundee. Dundee, Scotland, United Kingdom.

23 June 2014 : *Recent progress of numerical wave tank technique at the Saint-Venant Hydraulics Lab*. Invited by Dr. Hong Gun Sung, Division Director, to present department seminar in Korean Research Institute of Ships and Ocean Engineering, Daejeon, Korea.

Departmental talks:

22 Jan. 2021 : Les éléments frontières pour la modélisation de vagues (*Boundary elements for wave modeling*). GT-Vagues. Saint-Venant Hydraulique Laboratory. Chatou, France.

11 Mar. 2019 : Interactions fluide-structure (*Fluid-structure interaction*). Session 3.2.II of Cours de mécanique des fluides à surface libre (*Free-surface fluid mechanics*). Saint-Venant Hydraulique Laboratory. Chatou, France.

11 Mar. 2019 : Modèles et théories pour les vagues à fond plat (*Models and theories for waves over flat seabeds*). Session 3.1.II of Cours de mécanique des fluides à surface libre (*Free-surface fluid mechanics*). Saint-Venant Hydraulique Laboratory. Chatou, France.

23 Jan. 2014 : Progress in fast integral equation methods for fully nonlinear water wave modeling: applications to wave energy converters. Saint-Venant Hydraulics Laboratory. Chatou, France.

10 Nov. 2011 : Overview of recent tsunami modeling at URI: modeling of the 2011 Tohoku (Japan) tsunami. University of Rhode Island, Department of Ocean Engineering. Narragansett, RI, USA.

7 Oct. 2010 : Modeling suspended sediment transport in the ocean SAMP study area. University of Rhode Island, Department of Ocean Engineering. Narragansett, RI, USA.

11 Feb. 2010 : Wave-induced sediment transport: simulation of turbulent wave boundary layers. University of Rhode Island, Department of Ocean Engineering. Narragansett, RI, USA.

30 Apr. 2009 : Simulation of wave-induced sediment transport around obstacles. University of Rhode Island, Department of Ocean Engineering. Narragansett, RI, USA.

Conference participation:

June 2021 : (Participation only) B'Waves, conference on breaking waves. Web conference.

Jan. 2021 : 14th World Conference in Computational Mechanics and ECCOMAS Congress. Web conference (Paris, France).

Nov. 2020 : Les 17èmes Journées de l'Hydrodynamique. Web conference (Cherbourg, France).

Oct. 2020 : (Participation only) 33rd Symposium on Naval Hydrodynamics. Web conference (Osaka, Japan).

July 2019 : Simulation and Optimization for Renewable Marine Energies (EMRSIM). Roscoff, France.

May 2019 : 2nd International Workshop on Marine Hydrodynamics Modelling. Harbin, China.

May 2019 : Code.Saturne User Meeting. Saclay, France.

Mar. 2019 : (Participation only) Journée "Fabrique à projet" ANR, PEPS, H2020, ERANET, Interreg, etc. Organized by "GT5 – Energies marines, hydrauliques et éoliennes". Paris, France.

Nov. 2018 : Les 16èmes Journées de l'Hydrodynamique. Marseille, France.

Sept. 2018 : (Participation only) COMMODORE (Community for the numerical modeling of the global, regional and coastal ocean) workshop. Paris, France.

May 2018 : (Participation only) Sillages et Ondes de Surface 3. Paris, France.

Apr. 2018 : International Workshop on Water Waves and Floating Bodies. Lorient, France.

Jun. 2017 : 26th International Ocean and Polar Engineering Conference. San Francisco, United States.

Apr. 2017 : (Poster) Code.Saturne User Meeting. Saclay, France.

Apr. 2017 : Long Waves and Tsunamis Workshop. Dundee, Scotland.

Apr. 2017 : Hydrodynamics of Wave Energy Converters Workshop. Bilbao, Spain.

Nov. 2016 : Les 15èmes Journées de l'Hydrodynamique. Brest, France.

Apr. 2016 : (Participation only) Sillages et Ondes de Surface 2. Orsay, France.

Apr. 2016 : (Poster) Code_Saturne User Meeting. Chatou, France.

Apr. 2016 : (Participation only) Journée Calcul Haute Performance et Décomposition de Domaines. Villeteuse, France.

Sept. 2015 : (Participation only) Vorticité et Surface Libre. Workshop of GdR MéPhy. Paris, France.

June 2015 : 2nd Frontiers in Computational Physics: Energy Sciences. Zurich, Switzerland.

Nov. 2014 : Les 14èmes Journées de l'Hydrodynamique. Val de Reuil, France.

June 2014 : 24th International Ocean and Polar Engineering Conference. Busan, Korea.

Mar. 2014 : (Participation only) ONC Tsunami Workshop. Victoria, Canada.

Sept.-Oct. 2013 : 5th GACM Colloquium on Computational Mechanics. Hamburg, Germany.

Nov. 2012 : Les 13èmes Journées de l'Hydrodynamique. Chatou, France.

June 2012 : 22nd International Ocean and Polar Engineering Conference. Rhodes, Greece.

Mar.-Apr. 2011 : (Participation only) NTHMP model benchmarking workshop. Galveston, USA.

June 2010 : 20th International Ocean and Polar Engineering Conference. Beijing, China.

Apr. 2010 : (Participation only) NSF Workshop on air-sea interactions under tropical cyclones. West Greenwich, RI, USA.

May-June 2009 : 28th International Conference on Ocean, Offshore and Arctic Engineering. Honolulu, USA.

Dec. 2007 : (Poster) AGU Fall Meeting. San Francisco, USA.

Apr. 2007 : 5th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory. Athens, GA, USA.

Mentoring of Students

Postdoctoral Researchers

2016–2019 : Konstantin Kuznetsov, Postdoctoral researcher, Saint-Venant Hydraulics Laboratory. Supervision of improvements in three-dimensional fully nonlinear numerical wave tank for offshore structures. **Supervision at 100%**

2015 : Emmanuel Dombre, Postdoctoral researcher, Saint-Venant Hydraulics Laboratory. Co-supervision with Damien Violeau; application of three-dimensional fully nonlinear numerical wave tank for offshore structures. **Co-supervision at 50%**

Ph.D. Students

2020– : Sunil Mohanlal, Ph.D. student, Ecole des Ponts ParisTech. **PhD supervisor.** Co-supervision with Dr. Luc Pastur, ENSTA-Paris. Improving 3D wave modelling in maritime environments and in interaction with structures.

2019– : Rémi Corniglion, Ph.D. student, Ecole des Ponts ParisTech. **PhD supervisor.** Numerical modeling of turbines by blade element momentum theory.

2018– : Paul Landesman, Ph.D. student, Ecole des Ponts ParisTech. **PhD supervisor.** Co-supervision with Prof. Michel Benoit; application of three-dimensional fully nonlinear numerical wave tank for floating wind turbines.

2015–2018 : Amin Mivehchi, Ph.D. student, University of Rhode Island. Co-supervision with Prof. Stephan Grilli; application of three-dimensional fully nonlinear numerical wave tank for ship waves. **Co-supervision at 20%**

2012–2015 : Emmanuel Dombre, Ph.D. student (also post-doc in 2015), Saint-Venant Hydraulics Laboratory. Co-supervision with Damien Violeau; application of three-dimensional fully nonlinear numerical wave tank for offshore structures. **Co-supervision at 50%**

2010–2012 : Tayebah Tajalli Bakhsh, Ph.D. student, University of Rhode Island. Co-supervision with Prof. Stephan Grilli; utilization of Boussinesq model FUNWAVE-TVD for predicting tsunami risks to the east coast of the United States. **Co-supervision at 40%**

Masters Students

2021 : Amir Hossein Kharatizadeh, M.S. student internship. Co-supervision with Christophe Peyrard; diffraction and radiation force applied on a floating offshore wind turbine.

2012 : Christopher O'Reilly, M.S. student, University of Rhode Island. Co-supervision with Prof. Stephan Grilli; utilization of Boussinesq model FUNWAVE-TVD for predicting tsunami risks to the east coast of the United States. **Co-supervision at 20%**

2012 : Elise Estibals, M.S. student internship, University of Rhode Island. Co-supervision with Prof. Stephan Grilli; benchmarking of FUNWAVE-TVD model and understanding tsunami dissipation rates. **Co-supervision at 40%**

Project Management

DIMPACT

2020– : DIMPACT – Dimensionnement d'éoliennes flottantes prenant en compte les impacts de la raideur et du déferlement des vagues France Energies Marines (Institute pour la Transition Energétique; ITE) project; in charge of scientific work at Ecole des Ponts (ENPC) as a part of a consortium for supervision postdoctoral researcher concerning forces on floating offshore wind turbines.

STHYF

2017–2019 : STHYF – STabilité de câble et HYdrodynamique de Fond. France Energies Marines (Institute pour la Transition Energétique; ITE) project; in charge of scientific work at Ecole des Ponts (ENPC) as a part of a consortium for supervision of 18-month postdoctoral researcher concerning forces on submarine cables for offshore renewable energy.

Notably, this work consists of modeling at multiple scales, both a small-scale Navier-Stokes model of a submarine cable lying on the seabed, to better understand the forces resulting from currents and waves, as well as a large-scale hydrodynamics model to understand the local conditions in the English Channel (*Raz Blanchard*).

SAMP

2010 : SAMP – Rhode Island Ocean Special Area Management Plan. Project funded by the State of Rhode Island Office of Energy Resources. Part of consortium at the University of Rhode Island studying sediment transport around first commercial offshore wind farm with the ocean model ROMS, acting as co-Principal Investigator and postdoctoral researcher.

Teaching activities

2016- : Instructor, *Incompressible Fluid Mechanics*, Ecole des Ponts ParisTech

2019- : Instructor, *Sea States, Wave Propagation, and Ocean Wave Energy*, ENSTA-Paris

Service

Member of Scientific Organizing Committee for: Journées de l'Hydrodynamique (2018, 2020), Simulation and Optimization for Renewable Marine Energies (EMRSIM) 2019.

Co-organizer of Mini-Symposium (*High-performance tools for free-surface flows and floating bodies*), WCCM-ECCOMAS 2020.

Occasional reviewer for international journals including:

Engineering and Computational Mechanics, Engineering Applications of Computational Fluid Mechanics, Bulletin of the Seismological Society of America, Journal of Fluids and Structures, Pure and Applied Geophysics, European Journal of Mechanics – B/Fluids, Ocean Engineering, Journal of Engineering for the Maritime Environment, International Journal of Computational Methods, Computers and Fluids, Applied Mathematical Modelling, Ocean Modelling, Ocean Dynamics, KSCE Journal of Civil Engineering, Journal of Computational Physics, Geophysical Journal International

Occasional reviewer for international conferences including:

Proceedings of the International Society of Offshore and Polar Engineering, World Maritime Technology Conference, Journées de l'Hydrodynamique

Once reviewer for the U.S. National Science Foundation. Once reviewer for EDF Prix Paul Caseau.