

# Zhangping Wei, PhD, PE

## Assistant Professor of Coastal Engineering

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### Professional Preparation

- Post-Doc in Coastal Engineering, Johns Hopkins University, June 2014 – September 2018.
- Ph.D. in Engineering Science (Computational Hydroscience), University of Mississippi, 2014.
- M.Eng. in Hydraulics & River Mechanics, Nanjing Hydraulic Research Institute, 2010.
- B.Eng. (Honors) in Hydraulic Engineering, Hohai University, 2008.

### Professional Experience

- **Assistant Professor**, University of North Carolina Wilmington, August 2020 – Present
- **Senior Coastal Engineer**, Michael Baker International, Inc. (Alexandria, VA), April 2019 – August 2020
- **Coastal Engineering Specialist**, Stantec Consulting Services, Inc. (Laurel, MD), September 2018 – March 2019
- **Post-doctoral Fellow**, Johns Hopkins University, June 2014 – September 2018
- **Adjunct Instructor**, Johns Hopkins University, August 2016 – January 2017

### Publications (\* denotes student co-author)

#### Peer-reviewed Articles

1. **Wei, Z.**, B. L. Edge, R. A. Dalrymple, A. H erault. Modeling of wave energy converters by GPUSPH and Project Chrono. *Ocean Engineering*, 183, 332-349, 2019.
2. Liu, Q\*, T. Sun, D. Wang, **Z. Wei**. "Laboratory study of wave uplift force on horizontal panels". *Journal of Oceanology and Limnology*, DOI: 10.1007/s00343-019-8292-9, 2019.
3. **Wei, Z.**, C. Li\*, R. A. Dalrymple, M. Derakhti, J. Katz. "Chaos in breaking waves". *Coastal Engineering*, 140, 272-291, 2018.
4. **Wei, Z.**, R. A. Dalrymple, M. Xu\*, R. Garnier, M. Derakhti. "Short-crested waves in the surf zone". *Journal of Geophysical Research: Oceans*, 122, 2017. [**Journal Highlight**]
5. **Wei, Z.**, R. A. Dalrymple. "Numerical study on mitigating tsunami force on bridges by an SPH model". *Journal of Ocean Engineering and Marine Energy*, 2(3), 365–380, 2016.
6. **Wei, Z.**, R. A. Dalrymple, E. Rustico, A. H erault, G. Bilotta. "Simulation of nearshore tsunami breaking by Smoothed Particle Hydrodynamics method". *Journal of Waterway, Port, Coastal, and Ocean Engineering*, 142(4), 05016001, 2016.
7. **Wei, Z.**, R. A. Dalrymple, A. H erault, G. Bilotta, E. Rustico, H. Yeh. "SPH modeling of dynamic impact of tsunami bore on bridge piers". *Coastal Engineering*, 104, 26–42, 2015.

8. **Wei, Z.**, Y. Jia. “Non-hydrostatic finite element model for coastal wave processes”. *Coastal Engineering*, 92, 31–47, 2014.
9. **Wei, Z.**, Y. Jia. “Simulation of nearshore wave processes by a depth-integrated non-hydrostatic finite element model”. *Coastal Engineering*, 83, 93–107, 2014.
10. **Wei, Z.**, B. Jang, Y. Jia. “A fast and interactive heat conduction simulator on GPUs”. *Journal of Computational and Applied Mathematics*, 270, 496–505, 2014.
11. **Wei, Z.**, Y. Jia. “A depth-integrated non-hydrostatic finite element model for wave propagation”. *International Journal for Numerical Methods in Fluids*, 73(11), 976–1000, 2013.
12. **Wei, Z.**, B. Jang, Y. Zhang, Y. Jia. “Parallelizing alternating direction implicit solver on GPUs”. *Procedia Computer Science*, 18, 389–398, 2013.

### Conference Proceedings

13. Ding, X., G. Coco, R. A. Dalrymple, **Z. Wei**, R. Garnier, C. Whittaker, R. T. Guza. “Simulations of subharmonic edge wave excitation using GPUSPH”. In *Proceedings of the 14th International SPHERIC Workshop*, June 25 – June 27, 2019. Exeter, UK.
14. **Wei, Z.**, R. A. Dalrymple. “Surf zone wave heating by energy dissipation of breaking waves”. In *Proceedings of 36th International Conference on Coastal Engineering*, July 30 – August 3, 2018. Baltimore, Maryland.
15. **Wei, Z.**, R. A. Dalrymple. “SPH modeling of short-crested waves”. In *Proceedings of 12th International SPHERIC Workshop*, June 13–15 2017. Ourense, Spain.
16. **Wei, Z.**, R. A. Dalrymple. “SPH modeling of vorticity generation by short-crested wave breaking”. In *Proceedings of 35th International Conference on Coastal Engineering*, Nov. 17–20, 2016. Antalya, Turkey.
17. **Wei, Z.**, H. Shi\*, C. Li\*, J. Katz, R. A. Dalrymple, G. Bilotta. “Behavior of oil under breaking waves by a two-phase SPH model”. In *Proceedings of 11th International SPHERIC Workshop*, June 14–16 2016. Munich, Germany.
18. **Wei, Z.**, Y. Jia. “A two-dimensional non-hydrostatic finite element model for wave propagation”. In *Proceedings of 35th IAHR World Congress*, Sept. 8–13, 2013. Chengdu, China.
19. **Wei, Z.**, Y. Jia. “A shallow-water equation based one-dimensional dynamic wave model with non-hydrostatic pressure”. In *Proceedings of Mississippi Water Conference 2013*. April 2–3, 2013. Jackson, Mississippi, USA.
20. Jia, Y., **Z. Wei**, S.S.Y. Wang, K. Blanckaert, M.L. Ribeiro\*, 2012. “A study of flow characteristics near a channel confluence using CCHE2D/3D models”. In *Proceedings of the 10th International Conference on Hydroscience & Engineering*, Nov. 4–7, 2012. Orlando, Florida, USA.

### Dissertation & Thesis

21. **Wei, Z.**, “Non-hydrostatic models for wave propagation, breaking, and run-up”. *Ph.D. dissertation*. University of Mississippi, USA, 2014.
22. **Wei, Z.**, “Study of hydrodynamic characteristics of Chinese sturgeon spawning grounds & transport characteristics of its eggs”. *M.E. thesis*. Nanjing Hydraulic Research Institute, China, 2010.
23. **Wei, Z.**, “Rockfill dam design in Zhong-Lv area”. *B.E. thesis*. Hohai University, China, 2008.

## Presentations

1. **Wei, Z.** “Dune erosion and wave overtopping study in Port Lewes, DE”. *Maryland Resiliency Partnership Quarterly Meeting*, June 11, 2020. Baltimore, Maryland, USA.
2. Ding, X., Coco, G., Guza, R.T., Garnier, R., Whittaker, C., Dalrymple, R.A., **Wei, Z.**, Lomonaco, P., Blondeaux, P., Vittori, G., “Laboratory observations of the intermittent growth of edge waves with random incident waves”. *Ocean Sciences Meeting 2020* February 16-21, 2020, San Diego, USA.
3. Ding, X., Coco, G., Guza, R.T., Garnier, R., Whittaker, C., Dalrymple, R.A., **Wei, Z.**, Lopez De San Roman Blanco, B., Lomonaco, P., Blondeaux, P. and Vittori, G., “Intermittent subharmonic edge wave excitation with random incoming waves”. *AGU Fall Meeting*, December 14-18, 2018, Washington, D.C. USA.
4. **Wei, Z.**, R. A. Dalrymple. “SPH modeling Of surf zone heating by energy dissipation of breaking waves”. *36th International Conference on Coastal Engineering*, July 31 – August 3, 2018. Baltimore, Maryland, USA.
5. **Wei, Z.**, R. A. Dalrymple, C. Li, J. Katz. “Numerical investigation of chaotic behavior of breaking waves”. *Gulf of Mexico Oil Spill and Ecosystem Science Conference*, Feb. 6–9, 2017. New Orleans, Louisiana, USA.
6. **Wei, Z.**, R. A. Dalrymple, C. Li, J. Katz. “Simulation of oil dispersion under breaking waves”. *Gulf of Mexico Oil Spill and Ecosystem Science Conference*, Feb. 1–4, 2016. Tampa, Florida, USA.
7. **Wei, Z.**, R. A. Dalrymple. “Analysis of tsunami mitigation on bridges by GPUSPH”. *Civil Engineering Graduate Association Research Expo, Johns Hopkins University*, Oct. 1, 2015. Baltimore, Maryland, USA.
8. **Wei, Z.**, R. A. Dalrymple. “Simulation of dynamic impact of tsunami bore on bridges by GPUSPH”. *Young Coastal Scientists & Engineers Conference (North America) 2015*, July 27–29, 2015. Newark, Delaware, USA.
9. **Wei, Z.**, R. A. Dalrymple. “SPH modeling of tsunami bore impact on bridge piers”. *The 2nd Annual Johns Hopkins Postdoctoral Retreat*, April 7, 2015. Baltimore, Maryland, USA.
10. **Wei, Z.**, R. A. Dalrymple. “Modeling coastal wave processes by GPUSPH”. *Civil Engineering Graduate Association Research Expo, Johns Hopkins University*, Nov. 20, 2014. Baltimore, Maryland, USA.
11. **Wei, Z.**, Y. Jia. “Nearshore wave modeling with a non-hydrostatic finite element model”. *Mid-South Annual Engineering & Science Conference 2013*, Oct. 28–29, 2013. Oxford, Mississippi, USA.
12. **Wei, Z.**, Y. Jia. “A Study of the Flow Characteristics near Channel Confluence using CCHE2D/3D Models”. *Mid-South Annual Engineering & Science Conference 2012*, May 1, 2012. Memphis, Tennessee, USA.
13. **Wei, Z.**, Y. Jia. “Study of the hydrodynamic characteristics of Chinese sturgeon spawning grounds by CCHE3D model”. *Mid-South Annual Engineering & Science Conference 2011*, May 3, 2011. Memphis, Tennessee, USA.

## Professional Activities

- **Reviewer** for 10+ scientific journals including *Coastal Engineering (Elsevier)*, *Ocean Modelling (Elsevier)*, *Ocean Engineering (Elsevier)*, *Journal of Bridge Engineering (ASCE)*, *Journal of Coastal Research (CERF)*, *Journal Of Computational Physics (Academic Press)*, *Journal of Hydraulic Engineering (ASCE)*, *Journal of Hydrodynamics (Elsevier)*, *Journal of Marine Science and Engineering (MDPI)*, *Water (MDPI)*, *Applied Sciences (MDPI)*, *Journal of Ocean Engineering and Marine Energy (Springer)*, *Journal of Ocean Engineering and Science (Elsevier)*, *Marine Geodesy (Taylor & Francis, UK)*.
- **Professional Engineer** in water resources and environmental engineering, Washington, DC, May 2019 – present (License #: PE921371).
- **Session Chair**, Young Coastal Scientists & Engineers Conference (North America), 2015.

## Selected Awards & Honors

- Outstanding Reviewer Award of Journal of Bridge Engineering (ASCE), 2017.
- Dissertation Fellowship Award of University of Mississippi, 2014.
- Academic Excellence Scholarship of Nanjing Hydraulic Research Institute, China, 2009.
- President's Scholarship of Hohai University, China, 2008.
- Outstanding Graduate Award of Hohai University, China, 2008.

## Teaching Training, Experience, and Outreach

- **Pedagogical Training**
  - Participant of *Preparing Future Faculty Teaching Academy* program at Johns Hopkins University; the certificate of completion was awarded on September 28, 2016.
  - Participant of the online course *Advancing Learning Through Evidence-Based STEM Teaching* offered by the Center for the Integration of Research Teaching and Learning (CIRTL), Summer 2016.
  - Participant of *Summer Teaching Institute* at Johns Hopkins University, May 27–29, 2015.
- **Teaching Experience**
  - Instructor of EGN 330: *Coastal Wave Mechanics* in Fall 2020 at UNC Wilmington.
  - Instructor of EN 560.333.13: *Introduction to Numerical Programming for Engineers* in January 2017 at Johns Hopkins University.
  - Instructor of EN.500.111.5&6: *Introduction to High Performance Computing* in Fall 2016 at Johns Hopkins University.
  - Teaching Assistant & Guest Lecturer of EN.560.682: *Introduction to Water Wave Mechanics* in Spring 2016 at Johns Hopkins University (Instructor: Prof. Robert A. Dalrymple).
- **STEM Outreach**
  - Volunteer for the *STEM Achievement in Baltimore Elementary Schools (SABES)* project, 2016 – 2017 school year.

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