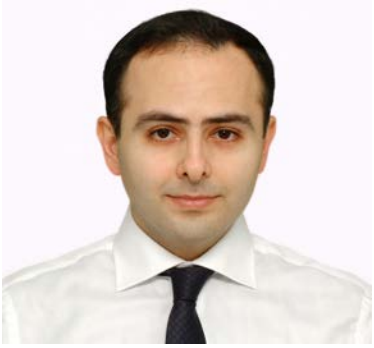
Dr. Abbas Khayyer



Dr. Abbas Khayyer is an Associate Professor at Applied Mechanics Laboratory in Department of Civil and Earth Resources Engineering at Kyoto University. He holds a BSc in Civil Engineering (2002), MSc in Hydraulic Structures (2005) and PhD in Civil/Coastal Engineering (2008). After obtaining his PhD in 2008, Abbas continued his research as a postdoctoral research fellow at Kyoto University for one year. In 2009, he was appointed as a Lecturer and then in April 2013 he was promoted to a tenured Associate Professor at Applied Mechanics Laboratory at the same department and university. Since then, Abbas has been a co-chair of Applied Mechanics Laboratory. The research interests of Abbas mainly include Computational Fluid and Structure Dynamics, Particle Methods and Fluid-Structure Interactions. He has published more than 80 journal papers and 50 international conference articles and currently has an h-index of 30 in Google Scholar and 28 in Scopus. Abbas has been listed in world's top 2% scientists lists by Stanford University in 2020 and 2021 in both yearly and full career lists. Abbas received the international prestigious C.H. Kim award by ISOPE in 2018 for his outstanding contribution to CFD in ocean engineering. He is an associate editor of Applied Ocean Research, one of the editors of Coastal Engineering Journal (CEJ), an associate editor of international journal of offshore and polar engineering, and an editorial board member for several international journals including ocean engineering and European journal of mechanics B/Fluids. Abbas is also a steering committee member of SPHERIC as the leading international community on particle methods.

Keynote Presentation 10:
Entirely Lagrangian Meshfree Methods for Hydroelastic Fluid-Structure Interactions - Recent Advances and Future Perspectives

This talk summarizes the latest developments corresponding to hydroelastic Fluid-Structure Interaction (FSI) solvers established within the context of Lagrangian meshfree or particle methods. In specific, the developments made for establishment of entirely Lagrangian meshfree FSI solvers comprising of projection-based Newtonian fluid models and Newtonian/Hamiltonian structure models will be discussed for FSI encountered in marine engineering including hydroelastic slamming. The achieved advances can be viewed with respect to three aspects of reliability, adaptivity and generality. Regarding reliability, the importance of rigorous achievements of stability, accuracy, consistency, conservation and convergence would be outlined. The emphasis will be on coherent and scrupulous validations through consideration of reliable analytical and experimental reference solutions. As for adaptivity, achievement of adaptive and consistent solvers will be presented within the context of two well-known particle methods, namely, SPH and MPS. Regarding generality, advances corresponding to composite structures and material anisotropy would be discussed. In specific, the advantageous features of variationally consistent Hamiltonian structure models for

reliable simulations of composite structures would be highlighted. Finally, the future perspectives for continuous development of entirely Lagrangian meshfree FSI solvers will be discussed.