

# **A high-order and mesh-free computational model for non-linear water waves**

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## **ABSTRACT**

In this paper, we present the ongoing developments of a novel computational model for non-linear water waves that aims to provide a suitable framework for wave-structure interaction. The proposed model is based on radial basis function-generated finite differences, which allow for arbitrary and moving boundaries without the use of ghost nodes. In order to take advantage of the mesh-free setting, we propose a node generation strategy, suitable for moving boundaries. Numerical properties of the proposed model are investigated and finally the model is benchmarked. The proposed model is expected to provide a suitable computational framework for wave-structure interaction problems, due to its geometric flexibility and high-order nature.