

WAVE-STRUCTURE INTERACTION

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ABSTRACT

Wave-structure interaction (WSI) is a special class of fluid-structure interaction. It involves the forces exerted by waves on one or more solid structures, which in turn alter the surrounding wave field through their dynamic response. This interaction is prevalent in both natural marine environments and various engineering applications, as well as in determining the safety and efficiency of ships and offshore structures. Consequently, understanding WSI is crucial for advancements in marine science, as well as the design and operation of maritime systems. The scope of this invited session encompasses a comprehensive examination of WSI from multiple perspectives, including theoretical foundations, numerical modelling, practical applications, and experimental methods. It aims to cover recent advancements in the understanding of complex wave dynamics and their impact on various structures, such as offshore platforms and marine renewable energy devices, among others. This session will address the development and validation of theoretical and computational models, as well as the integration of innovative experimental approaches. Additionally, it will explore real-world applications and case studies that demonstrate the practical implications of WSI. By bringing together experts from academia and industry, the event seeks to foster interdisciplinary collaboration, identify current challenges, and outline future research directions, ultimately contributing to the resilience and sustainability of marine and coastal infrastructure.