

**DEPARTMENT OF MECHANICAL ENGINEERING****SEMINAR****Online**

**Title:** Experimental and numerical studies of wave-rigid body interaction: Wave attenuation properties of a constrained floating breakwater

**Speaker:** Miss Peng Ningning (PhD Candidate)  
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**Date:** 20 April, 2021 (Tuesday)

**Time:** 11:00 a.m.

**Zoom Link:** 1) Link to join the meeting:

<https://hku.zoom.us/j/99859028920?pwd=Y1o2ZkRDUUx2djI3YTBTbEFyUVdxZz09>

2) Meeting ID: 998 5902 8920

3) Password: 959912

**Abstract:**

Interactions between surface gravity waves and a mounted rigid body are complex, as waves may reflect, refract, or even overtop the body. Studies of these phenomena are critically important in determining and improving the safety and efficiency of offshore structures. Here the motions of a floating breakwater held by wires to the seabed were studied through numerical and experimental approaches. A model of the floating breakwater with a scale of 1:20 was tested in a water channel with wave maker. Wave properties, current velocity and the constraint force of the floating breakwater were measured in the laboratory. Computationally, numerical methods utilizing the volume of fluid (VOF), six degree of freedom (6DOF) and fluid-structure interaction (FSI) schemes were used to simulate the motions of the waves and the floating breakwater. The performance of the floating breakwater in terms of wave attenuation was assessed by varying the wavelengths, wave amplitudes, and current velocities both computationally and experimentally. The motions of floating breakwater were also analyzed. Agreements between the experimental and numerical tests were encouraging.

**ALL INTERESTED ARE WELCOME**

For further information, please contact Prof. K.W. Chow at 3917 2641.

**Research area: Thermofluids**