

Analytical and experimental modelling of a floating/submerged elastic disk

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We proposed two analytical models, and published two journal papers [1,2]

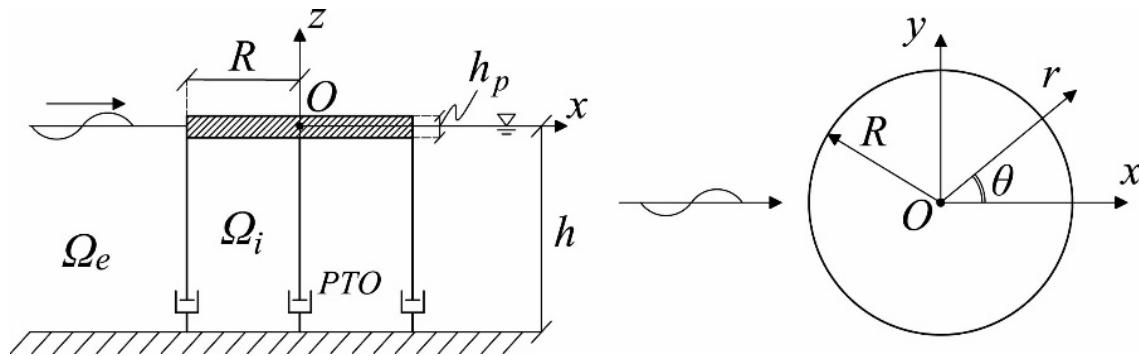


Fig. 1. View from above and horizontal cross-section of the flexible circular WEC [1]

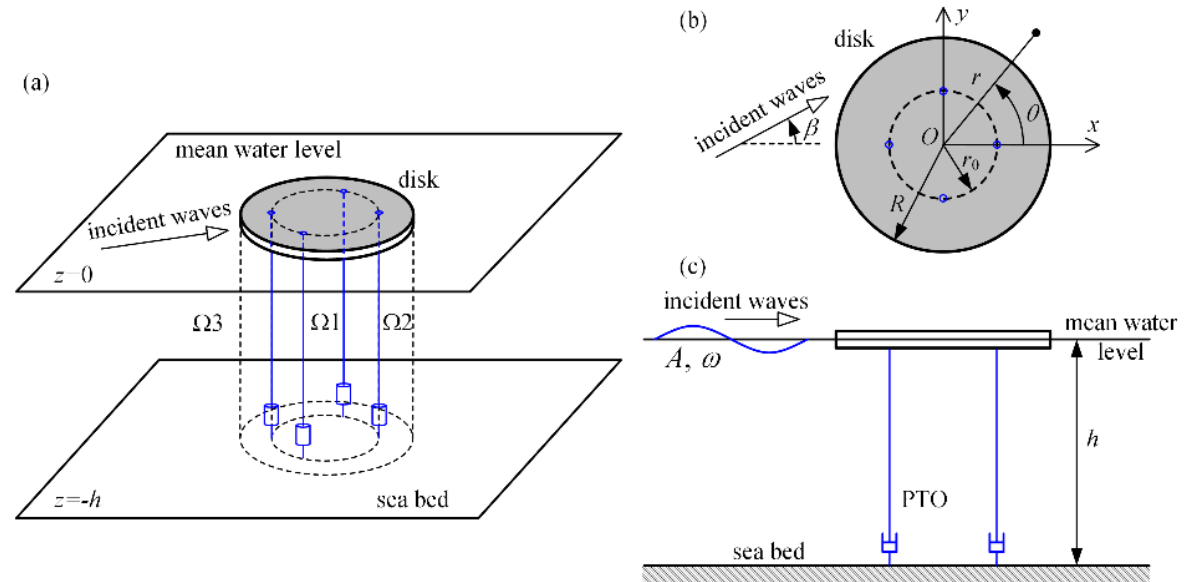


Fig. 2. Sketch of a floating elastic disk-shaped WEC with a discrete PTO system ($N = 4$): (a) bird's-eye view; (b) top view; (c) side view [2]

[1] Michele, S., Zheng, S., Greaves, D., 2022. Wave energy extraction from a floating flexible circular plate. *Ocean Engineering*, 245, 110275. [open access] <https://doi.org/10.1016/j.oceaneng.2021.110275>

[2] Zheng, S., Michele, S., Liang, H., Meylan, M.H., Greaves, D., 2022. Wave power extraction from a floating elastic disk-shaped WEC with a discrete PTO system. *Journal of Fluid Mechanics*, doi:10.1017/jfm.2022.110

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We carried out a series of experimental tests in the Ocean Basin of the COAST Laboratory, University of Plymouth

Deflection of the floating elastic disk was observed.

Analysis of the physical data is still ongoing. The nonlinear dynamics of the device will be evaluated, leading to a detailed physical insight of flexible WEC dynamics.

