

Abstract Submitted
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Geometric Optimization of Self-Reacting Point Absorber for Specific Sea-Sites¹ SUDHARSAN KALIDOSS, ARINDAM BANERJEE, Lehigh Univ — Self-reacting point absorbers (SRPA) are devices that are designed to capture power from the ocean. The wave climate is site-specific. As a result, the power capturing performance of the SRPA is improved by optimizing the device geometry for selected sea sites. The SRPA consists of two concentric bodies, torus (shallower body at the water surface) and float (deeper body acts as reference), heaving at different frequencies. The hydrodynamic coefficients of both bodies are calculated using boundary element solver (NEMOH); the time-domain modeling of multi-body dynamics of SRPA is modeled using open source code WEC-Sim. We will discuss results from our Genetic Algorithm optimization study where the float and the torus are optimized independently. The optimized geometry of the SRPA increases the power capture performance by 50% for both selected sea-sites.

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