

Abstract Submitted
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The Wave Carpet: An Omnidirectional and Broadband Wave Energy Converter M.-REZA ALAM, Univ of California - Berkeley — Inspired by the strong attenuation of ocean surface waves by muddy seafloors, we have designed, theoretically investigated the performance, and experimentally tested the “Wave Carpet:” a mud-resembling synthetic seabed-mounted mat composed of vertically-acting linear springs and generators that can be used as an efficient wave energy absorption device. The Wave Carpet is completely under the water surface hence imposes minimal danger to boats and the sea life (i.e. no mammal entanglement). It is survivable against the high momentum of storm surges and in fact can perform even better under very energetic (e.g. stormy) sea conditions when most existing wave energy devices are needed to shelter themselves by going into an idle mode. In this talk I will present an overview of analytical results for the linear problem, direct simulation of highly nonlinear wave fields, and results of the experimental wave tank investigation.

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