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**Energy Extraction from Incident Ocean Waves by Heaving and Flexing Mechanical Systems** AMADOU THIAM, Boston University — A discussion is given of the mechanical principles involved in the design of systems extracting energy from ocean waves. When waves are incident on the device, parts of the system heave and flex, and the quantitative differences between the heaving and flexing is used to drive energy conversion devices. The conversion system could be modeled by dashpots. The energy dissipated gives a limit to how much power the system can convert. One limitation is that the system re-radiates waves, energy unavailable for conversion. Accounting for this loss presents analytical challenges. This paper discusses advances enabling designers to account for it. The analytical problem thus presents itself as that of a defined mechanical system, which exterior contacts with the water. The system may have internal damping, not part of the energy converted, and there is an inherent viscous damping at interfaces when the water moves relative to the external surfaces of the system. For the system itself, parts may be modeled as continuous elements, such as beams or linked rigid bodies. One object in all such designs is, with reasonably imposed constrains, to extract as much power possible from a given incident wave.

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