

Energy Recovery from Swell with a Height Inferior to 1.5 m

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Abstract : Renewable energy recovery is an important domain of research in past few years in view of protection of our ecosystem. Several industrial companies are setting up widespread recovery systems to exploit wave energy. Most of them have a large size, are implanted near the shores and exploit current flows. However, as oceans represent 70% of Earth surface, a huge space is still unexploited to produce energy. Present analysis focuses on surface small scale wave energy recovery. The principle is exactly the opposite of wheel damper for a car on a road. Instead of maintaining the car body as non-oscillatory as possible by adapted control, a system is designed so that its oscillation amplitude under wave action will be maximized with respect to a boat carrying it in view of differential potential energy recuperation. From parametric analysis of system equations, interesting domains have been selected and expected energy output has been evaluated.

Keywords : small scale wave, potential energy, optimized energy recovery, auto-adaptive system

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