Study of Trapezoidal Flexible Horizontal Piezoelectric Cantilever Beam Based on ANSYS

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Abstract This paper presents the analysis of energy harvester by utilizing trapezoidal adaptable piezoelectric cantilever beam in which applied on ocean wave. The limitation of blade configuration is it just spotlight on single design progression of ocean wave movement. The limited component model is built by utilizing ANSYS to enhance the blade configuration to boost the output power. The analysis of trapezoidal adaptable piezoelectric plan shows the capacity to produce variable of electric force from least 18.4 μW up to 146.80 μW, with measurement of width, length, tallness of piezo is 5 mm, 30 mm, 0.10 mm and abundancy of ocean wave surface of 1.5 m individually.

Keywords Piezoelectric cantilever · ANSYS · Ocean wave

1 Introduction

These days, different investigation of energy harvesting are being conducted to deliver electrical force so as to flexibly the continuous power demand to the population on this world. The advantages of renewable energy are that it is reasonable and is low in ecological contamination. Developing burden necessity, an unnatural weather change, and energy emergency need energy-escalated the board to give earnest endeavors to advance high exactness energy checking strategies to upgrade energy framework effectiveness and execution [1]. The increasing demand of oil each year has made the application of energy reaper under exploration. Based on BP Statistical audit of World Energy June 2020, the demand for oil consumption is developing with the normal of 1.6 million barrels for every day (Mb/d), or 1.6% expansion over 10 years normal (1.2%) which has expressed the biggest augmentation [2]. In particular, in Asian nations, the earlier year result as gathered from 2005 until 2015, the fuel consumption was only 3.9% rather than 2.1% on 2016.

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