

**PS-E2.**

**AN EXPERIMENTAL INVESTIGATION TO IDENTIFY INDIVIDUAL AND  
COMPOUND FACTORS OF WAVE HARNESSING SYSTEM  
RELATED TO CHAMBER POWER**

B.R.K. OBEYESEKERA

*Department of Mechanical Engineering, Faculty of Engineering,  
University of Peradeniya, Sri Lanka*

Development in the field of wave energy over the last 20 years has led to a number of new concepts which are technically feasible and are becoming attractive among several countries. Strong wind blowing for some time (monsoon seasons) over a long stretch of water will generate large waves with a significant energy yield.

It has been calculated that the enormous amount of energy yield of sea waves only in South Coastal area of Sri Lanka is around 3000 MW to 7000 MW in different monsoon period.

Most of the Unidirectional turbines of wave harnessing devices work with low power output due to insufficient study of design parameters of above mentioned.

It is decided to use the dispersion analysis to identify the correlation of independent factors such as submerged height of wave energy harnessing device, wave height and wave amplitudes at different levels and as well as their various combinations on power output. In this program, 3 levels of different wave amplitudes; 6 different levels of wave periods and three different submerged heights are taken into consideration.

Number of experiments were conducted in this program is 162. Turbine performance is considered as output parameter.

The experimental result, shows that the performance of the turbine of wave energy harnessing device is highly correlated with wave height; simultaneous of wave height, wave period and submerged height is followed as the next highly correlated factor to change the performance of the turbine. Further it shows that the turbine performance is changed with simultaneous affection of compound factor of wave height and wave period and also the compound factor of wave height and submerged height.