

Third Laureate Innovation



- **Project title:** Design of New Mechanical Electricity Generation System from Sea Waves
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Abstract:

Wave is one of the most important phenomena in the ocean surface which its power of energy can be observed when they attack the beaches and marine structures. There are different plans for ocean wave energy absorption in the world. However most of them are in study stages and have not been approved for bulk production. Iran has a special geographical condition with about 2700 km shore line. Therefore it is worth to study the potential of wave energy absorption for the shore line of this country.

In this research a mechanical wave energy converter in laboratory scale is designed. It contains a central device and a number of arms attached to it and some floating buoys. These arms transfer the buoys' heave motion to the central device. Central device is consisting of controllers, mechanical and electrical components to transfer the wave motion to generators, electrical converter and mechanical energy storage. The advantages of this device in comparison with manufactured similar devices in the world are as follows:

- It is not sensitive to wave direction
- It is not sensitive to wave height limitations (It can work with wave heights in a range of about 10 centimeters to greater than 4 meters)
- Possibility of storage of mechanical energy
- Uniform and non periodic electrical output
- Independent of foreign technologies

