



Apparatus and Methods for Tuning and Amplifying Piezoelectric Sonic and Ultrasonic Outputs

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- Electrical Engineering
- NSWC Crane

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The U.S. Navy seeks a partner for licensing and collaboration on an apparatus and method for amplifying piezoelectric sonic and ultrasonic outputs which mitigates overheating, optimizes the transmitted energy, and focuses the energy in the desired direction.

Presently, the transfer of energy through open air, by piezoelectric devices, has several real-world limitations such as a lack of heat dissipation, problems with power capability, and directional control. Due to these limitations, open air applications are severely limited in many areas where they could be beneficial.

NSWC Crane has patented an "Apparatus and Methods of Tuning and Amplifying Piezoelectric Sonic and Ultrasonic Outputs." The apparatus increases the amount of energy transmitted to a target or in a given direction produced by piezoelectric devices. This invention deals with heat dissipation problems by sandwiching the piezoelectric devices between metal plates. To optimize the transmitted energy, resonance at the desired frequency of the device is achieved through sizing the metal plates. And by stacking the sandwiched devices and phasing the outputs of each device to be in phase with the front plate, all wavefronts are additive at the front surface and focused in a desired direction.

People:

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