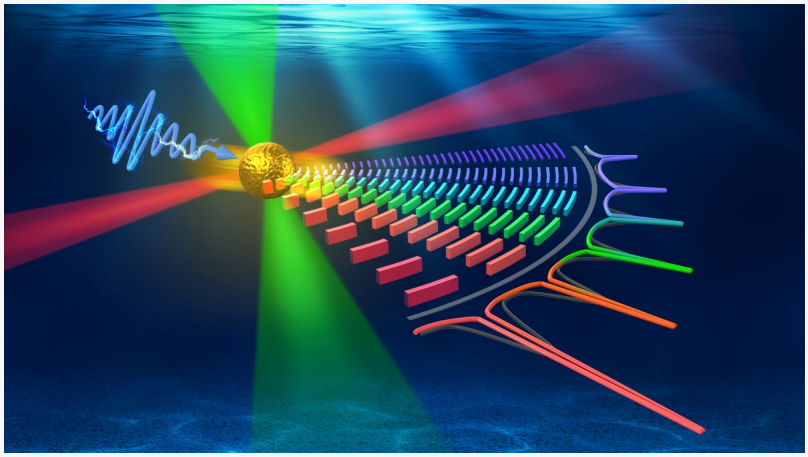
The most powerful sound laser ever made

GA, UNITED STATES, September 6, 2024 /EINPresswire.com/ -- Scientists have significantly improved a new type of laser that uses sound waves instead of light. This "phonon laser" has potential uses in deep-sea exploration, medical imaging, and other areas. The researchers were able to greatly boost the power and precision of the sound waves by adding a small electronic nudge. This paves the way for future devices using sound for a wider range of tasks.

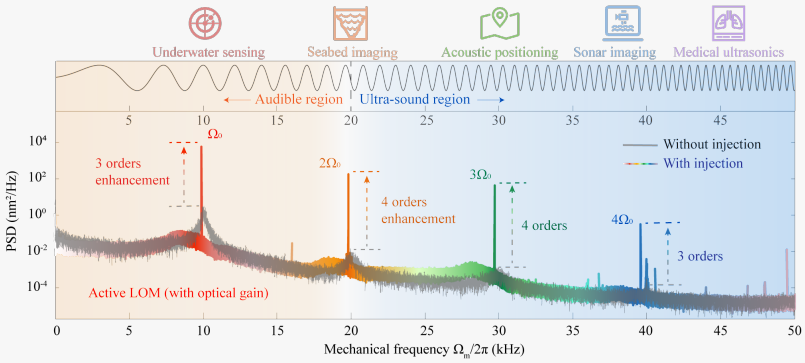
Scientists have made a significant leap in developing lasers that use sound waves instead of light. These "phonon lasers" hold promise for advancements in medical imaging, deep-sea exploration, and other areas.

The new technique involves a tiny electronic nudge that dramatically enhances the power and precision of the sound waves produced by the laser. This paves the way for future devices that could utilize sound for a broader range of applications.

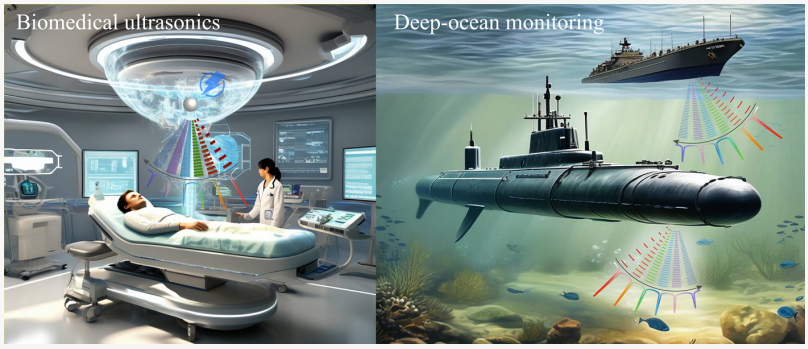
Previously, phonon lasers made from small objects suffered from weak and imprecise sound waves, limiting their usefulness. The new method overcomes this challenge by essentially "locking" the sound waves into a more stable and powerful state.



Electronically-driven active LOM system for generation of the most powerful phonon laser.



Enhanced nonlinear phonon lasers with wider frequency scope.



Vista of the nonlinear phonon laser in biomechanical ultrasonics and deep-ocean monitoring.

This breakthrough paves the way for powerful and precise phonon lasers suitable for real-world applications, such as medical imaging and deep-sea exploration. Phonon lasers can create more sensitive and less harmful medical imaging techniques, while deep-sea vehicles could implement improved communication and navigation.

Phonon lasers could also have applications in material science, quantum computing, and other fields.

This research represents a significant step forward in phonon laser development, potentially unlocking a range of new technologies.

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