Tsunami Invisibility Cloak

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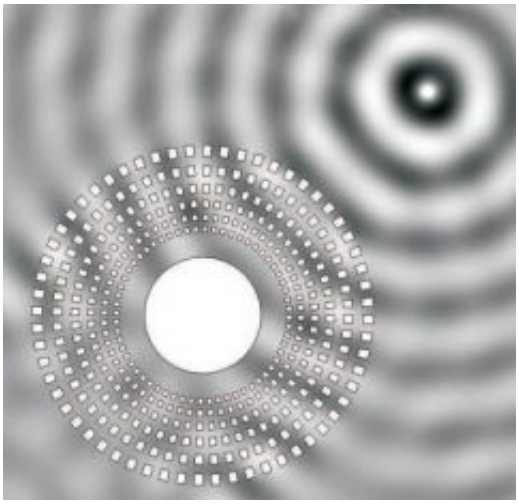

Laboratory experiments show that obstacles arranged in fluids in certain patterns can effectively make objects they surround invisible to waves. If it works as well in in scaled-up versions, it could lead to new ways to protect ocean-based platforms and coasts from devastating tsunamis. Credit: M. Farhat, S. Enoch, S. Guenneau and A.B. Movchan

Rather than building stronger ocean-based structures to withstand tsunamis, it might be easier to simply make the structures disappear.

A collaboration of physicists from the Centre National de la Recherche Scientifique (CNRS) and Aix-Marseille Universite in France and the University of Liverpool in England have conducted laboratory experiments showing that it's possible to make type of dike that acts as an invisibility cloak that hides off-shore platforms from water waves.

The principle is analogous to the optical invisibility cloaks that are currently a hot area of physics research.

Tsunami invisibility cloaks wouldn't make structures disappear from sight, but they could manipulate ocean waves in ways that makes off-shore platforms, and possibly even coastlines and small islands, effectively invisible to tsunamis.

If the scheme works as well in the real world as the lab-scale experiments suggest, a tsunami should be able to pass right by with little or no effect on anything hidden behind the cloak.

Citation: M. Farhat, S. Enoch, S. Guenneau and A.B. Movchan, *Physical Review Letters* (forthcoming article)

Source: American Physical Society