Metamaterials have extraordinary properties when it comes to diverting and controlling waves, especially sound and light: for instance, they can make an object invisible, or increase the resolving power of a lens. Now, researchers at the Centre de Recherche Paul Pascal (CNRS) and the Institut de Mécanique et d'Ingénierie de Bordeaux (CNRS/Université de Bordeaux/Bordeaux INP/Arts et Métiers ParisTech) have developed the first three-dimensional metamaterials by combining physico-chemical formulation and microfluidics technology. This is a new generation of soft metamaterials that are easier to shape. In their experiment, the researchers got ultrasonic oscillations3 to move backwards while the energy carried by the wave moved forwards. Their work opens up new prospects, especially for high-resolution imaging (ultrasonography). It is published on 15 December 2014 in the journal Nature Materials.

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