

# CFADAGA2004/648

## An overview of time-reversed acoustics

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Time-reversal invariance is a very powerful concept in physics. In the field of acoustics, where time-reversal invariance also occurs, time-reversal experiments may be achieved simply with arrays of transmit-receive transducers, allowing an incident acoustic field to be sampled, recorded, time-reversed, and re-emitted. The time-reversal mirrors (TRMs) are innovative tools in the field of fundamental physics. They may be used to study random media, multiple scattering processes, chaotic scattering, inverse scattering problems, dissipation effects, and diffraction limits. They open the way to new signal processing. An overview of these fields will be presented. Applications of TRMs will also be described, including underwater acoustics, medical applications, telecommunications, as well as nondestructive testing.

*The complete document was not available at the publication time. It has been replaced by the submitted abstract.*