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Active playback of acoustic quadraphonic sound events

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The reproduction in a given confined space - such as a cinema hall or a smaller room - of a sound event previously recorded in a completely different acoustical environment is an interesting and still open acoustical problem. A new method for hi-fi audio playback based on the general solution of the acoustic inverse problem is here proposed. A feed-forward control based on overdetermination of conditions at active contours - i.e. loudspeakers - in order to obtain an optimal stable solution via least square approach is here proposed. This is easily possible even for complex configurations thanks to acoustic quadraphony, the application of sound intensimetry to audio technology developed in the last years within the IST-2-511316-IP European project denominated IP-RACINE. After a short explanation of the model theory, the experimental application to the simplest case of 1-D confined field is presented and some obtained results are shown.