

Complete transmission invisibility for acoustic waveguides

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We consider a time harmonic acoustic problem in a locally perturbed waveguide with sound hard walls. We are interested in a situation where an observer generates an incident plane waves at $-\infty$ and measures the resulting scattered field at $-\infty$ and $+\infty$. We explain how to construct perturbations of the waveguide such that the scattered field is exponentially decaying both at $-\infty$ and $+\infty$, so that in practice, these defects are invisible to the observer.