1014-60-458 **Jean-Pierre Fouque*** (fouque@math.ncsu.edu). *Time Reversal in Randomly Layered Media.*

We consider first the case of an active source embedded below the surface in a finely layered random medium. Time reversal with a time reversal mirror placed at the surface is performed and we show that multipathing dramatically enhances the effective aperture of the mirror so that super resolution at the location of the source can be obtained. In other words, the focal spot radius of the refocused field is much smaller than the spot size obtained in the case of a homogeneous medium. This super resolution effect is obtained by time-reversing the long incoherent waves generated by the multiple scattering due to the thin layers. We also give an application to the problem of focusing on a passive scatterer buried in the random medium and illuminated by a source at the surface.

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