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### **Time Reversed Elastic Waves within Soft Solids**

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When a scalar far-field wave is time reversed from the surface of a cavity, it starts to converge toward its initial point source location, then collapses and finally diverges. Without near field evanescent waves, the symmetric focus spot is limited by the Rayleigh criterion. We present an experimental observation of a time-reversal vectorial wave in the volume of a soft solid. The elastic field is measured using the transient elastography technique. It is observed that the time reversed far field wave collapses and gives birth to near field effects. Numerical computation based on elastodynamic Green's functions in a time-reversal cavity confirms and completes the experimental conclusions: the time symmetry with respect to collapse time is broken and the Rayleigh criterion is direction dependant; the spatial collapse is larger in the direction of the point body force than in the perpendicular direction. The authors anticipate that the method can be used for shear wave beam forming in soft tissues as well as to tissue elasticity assessment.