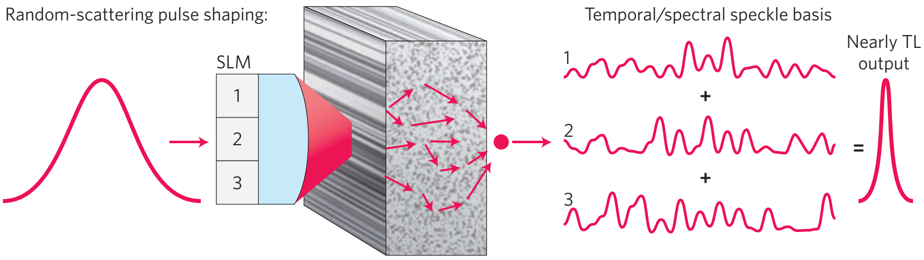

Figure 2 | The temporal speckle at any position within the medium is a random superposition of contributions from different points on the input surface. In the technique of Katz *et al.*, use of a spatial light modulator (SLM) causes these previously random and uncorrelated contributions to selectively reinforce each other, thereby achieving both spatial and temporal focusing. The output pulse may be restored nearly to the transform limit, and, if the input pulse is chirped (as shown here), compression may also be achieved. TL, transform-limited.

but these suffer from strong frequency-dependent delays that cause distortions in short-pulse propagation even without encountering multiple scattering. Applying time-reversal concepts, such waveforms can be predistorted (using photonic approaches that extend the available bandwidth of radiofrequency arbitrary waveform generation) so that they recompress when propagating through such antenna links, thereby overcoming antenna dispersion[8]. For the multiple scattering typical of indoor wireless propagation, time-reversal can be used to generate short peaks that optimize the signal-to-noise ratio for enhanced detection. Such peaking is also spatially selective in the sense that a wavelength scale displacement of the receiving antenna profoundly degrades the temporal peaking[9] — an effect that may prove useful for enhancing the security of wireless communications. This scenario, which involves manipulating only the temporal degrees of freedom at the input, poses an interesting parallel to the optical experiments[2,5] of Katz *et al.* and Aulbach *et al.*, which involve manipulating only the spatial degrees of freedom at the input. Both experiments result in spatially selective peaking in the time domain. Further fascinating possibilities arise when strong scattering occurs at the subwavelength scale. In this regime, space–time focusing has been achieved with subwavelength spatial selectivity, both in radiofrequency propagation[7] and in the femtosecond optical excitation of plasmonic nanoantennas[10].

It is clear that the strong mixing of spatial and temporal degrees of freedom through multiple scattering can lead not only to new phenomena in a wide range of physical systems, but also to new opportunities for counteracting or exploiting these phenomena. The experiments of Katz *et al.*, which demonstrate space–time focusing to enhance a two-photon nonlinear process, dramatically illustrate such opportunities and point the way towards using them for enhancing microscopy in turbid samples. ❐

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Correction

In the News & Views 'Avoiding indium' (*Nature Photon.* **5,** 201–202; 2011), credit for Figure 2 was incorrectly given to Linköping University. The figure was originally published in ref. 22 of the News & Views (Manceau, M., Angmo, D., Jørgensen, M. & Krebs, F. C. *Org. Electron.* **12,** 566–574; 2011) and credit should therefore have been given to Elsevier and Frederik Krebs Laboratory.

This error has been corrected in the HTML and PDF versions.