Experimental study for scattering suppression effect using digital phase-conjugate optics

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The scattering effect in light propagation through random media can be suppressed with the phase-conjugate optics. We have applied this technique to the transillumination imaging of animal body using a digital phase-conjugate system. In the experiment, we attempted to restore various incident light patterns through a scattering medium. Fig. 1 shows the images of the incident light patterns (a) and the observed images (b) through the scattering medium. The feasibility of scattering suppression using digital phase-conjugate light was verified as shown in Fig. 1 (c).

Fig. 1. Verification of scattering suppression by phase-conjugate light.