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Optical characteristics of a turbid medium between two mirrors
REBECCA WENNING, Q. SU, R. GROBE, Intense Laser Physics Theory Unit and Department of Physics, Illinois State University — Using the one-dimensional Boltzmann equation we examine the optical scattering properties of a turbid medium that is located between two mirrors with controllable reflectivity. We examine how the mirrors can be used to enhance the total transmission of an intensity modulated laser beam through this system. The analytical results show that for certain modulation frequencies the total transmission can be increased if the laser source is placed between the mirrors. This finding could improve diffusive imaging for those highly scattering media that are so thick that the laser light would not penetrate sufficiently deep in the absence of any mirrors. This work has been supported by the NSF and Research Corporation.

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