DAMOP06-2006-000372

Abstract for an Invited Paper
for the DAMOP06 Meeting of
the American Physical Society

Laser scattering in turbid media

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Light scattering in random media is an interesting research area from a fundamental and practical point of view. On the theoretical side, the precise relationship between the Maxwell, Boltzmann and diffusion descriptions are presently not very well understood. We have examined the validity of these three approaches based on numerical solution techniques. On the practical side, an improved understanding of this interaction has the potential to lead to new medical imaging devices based on lasers. We will report on our first experimental data and discuss how they can be modeled by Monte-Carlo simulations. Major portions of this research involved several undergraduate students who performed computer simulations and laboratory measurements. This work has been supported by funds from NSF and Research Corporation. S. Menon, Q. Su and R. Grobe, Phys. Rev. Lett. 94, 153904 (2005). S. Menon, Q. Su and R. Grobe, Opt. Lett. 30, 1542-1544 (2005).