Abstract Submitted
for the OSS11 Meeting of
The American Physical Society

Achieving collimated illumination for wide-field depth-resolved optical imaging JOHN KAMINSKY, MARTIN GLOSE, STEPHEN NEIL V. TACASTACAS, PEIFANG TIAN, Physics Department, John Carroll University — Camera based wide field optical imaging allows for in vivo functional imaging of the brain. The benefits of this method include a larger sampling area, faster data acquisition and higher spatial resolution; however it is unable to resolve depth information. This issue may be resolved by employing multiple wavelengths in the imaging system. As a demonstration of principle, we are building an imaging system with two different wavelengths at 455 nm and 585 nm, respectively by employing light emitting diodes (LEDs). The beam of an LED diverges quickly, therefore the objective of my research was to attach a collimating lens to modify the beam and minimize the divergence. In order to achieve this, we investigated different types of collimating lens and found the optimal one that can collimate the beam. We will present radiation patterns of beams with and without collimating lens.

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Date submitted: 05 Mar 2011 Electronic form version 1.4