

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Images of Cone Photoreceptors Using Spatially Non-Coherent Light¹ ALLISON HARTMAN, College of the Holy Cross, CHANGGENG LIU, MYUNG KIM, University of South Florida — In order to get clear images of the photoreceptors in a living human eye, we constructed a collimated beam of light with controllable spatial coherence. In the past, imaging techniques using coherent light have shown interference speckles that are the similar size and shape as photoreceptors; these experiments have been unable to differentiate the speckles and the photoreceptors that are in the retina of the eye. We used MatLab to create a simulation of the optical system using a light source with variable spatial coherence reflecting off of a resolution target and we were able to eliminate the speckle patterns. We then created an experimental setup to verify our simulation. We were able to get clear images of resolution targets and our future work will be to image retina samples using spatially non-coherent light and apply this technique in Digital Holography experiments.

¹I would like to thank the National Science foundation for funding this project and University of South Florida and the Digital Holography and Microscopy Lab for hosting me.

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Date submitted: 05 Nov 2012

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