Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Wide two-photon in vivo imaging deep inside thick biological tissue KAI LOU, BO WANG, Departments of Materials Science and Engineering, University of Illinois, STEVE GRANICK, Departments of Materials Science and Engineering, Chemistry, Physics, University of Illinois, GRANICK GROUP TEAM — Wide 3D imaging deep inside thick intact tissue is a grand challenge. Here we develop a method combining temporal focusing with modulating the spatial degrees of freedom of the incident light. By modulating the phase contrast in ways informed by random matrix theory, compression of spatial distortion and chirped ultrafast pulses through thick biological tissues are anticipated. This method is anticipated to provide a functional platform to map neuron behavior and networks.

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Date submitted: 13 Nov 2013 Electronic form version 1.4