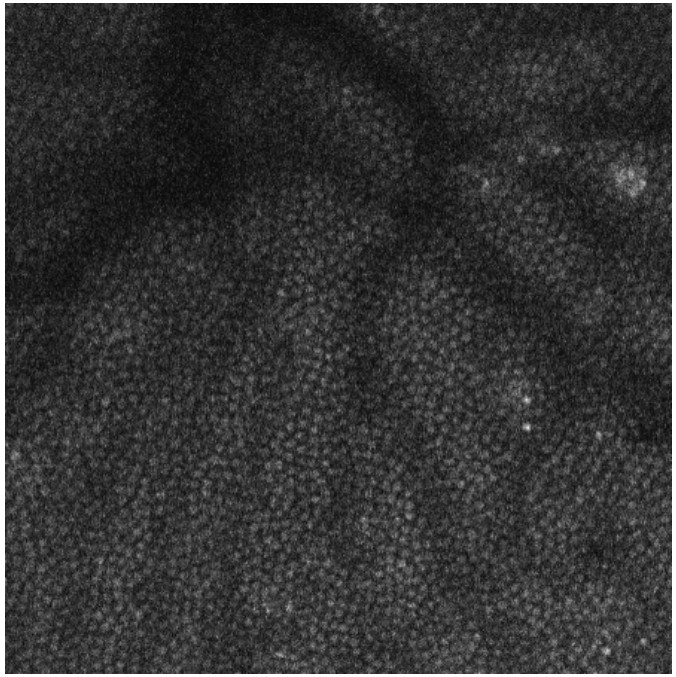
The Institute of OPTICS

Colloquium

UNIVERSITY OF ROCHESTER

Seeing cellular mosaics in the living eye



Professor Jennifer Hunter
Flaum Eye Institute, Center for Visual Science, and Biomedical Engineering, University of Rochester
PhD, Physics and Vision Science, Waterloo, 2007.

3:00 pm, December 5, 2011
Sloan Auditorium, Goergen 101
Refreshments served

This talk will describe experiments providing visualization of individual cells in the living retina using one- and two-photon fluorescence in a scanning laser ophthalmoscope equipped with adaptive optics.

.

HAJIM
SCHOOL OF ENGINEERING
& APPLIED SCIENCES

Seeing cellular mosaics in the living eye

Professor Jennifer Hunter
Department of Ophthalmology
University of Rochester

Abstract: The visualization of individual cells in the living retina has proven invaluable in the study of normal and diseased retinal structure and function. Many challenges, including image degradation from ocular aberrations, scatter, and eye movements, have been overcome, allowing images of blood cells in the smallest capillaries and single cones in the photoreceptor mosaic. Other cell layers in the retina are either transparent or opaque and are thus more difficult to visualize. However, the addition of fluorescence imaging capabilities to a scanning laser ophthalmoscope equipped with adaptive optics is making it possible to successfully image a larger variety of cells. With single photon-fluorescence, the retinal pigment epithelium, a single layer of cells behind the cones that provide critical support for photoreceptors, is now accessible. Two-photon fluorescence imaging in the living eye provides a new method to safely image not only retinal structure, but also to assess retinal function.

Biography: Jennifer J Hunter is an Assistant Professor of Ophthalmology in the Flaum Eye Institute with secondary appointments to the Center for Visual Science and Biomedical Engineering at the University of Rochester. In 2007, she received a PhD in Physics and Vision Science from the University of Waterloo, from which she also holds a MSc (2001) and a Honours BSc (1999) in Physics.