

**Title:** In vivo Magnetic Resonance Imaging of Visual Brain Plasticity in Eye Diseases and Injuries

**Speaker:**

Dr. Kevin Chuen-wing CHAN  
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**Date:** Tuesday, 17 January 2012

**Time:** 5:00 pm

**Venue:** Room 603, Chow Yei Ching Building

**Abstract:**

The performance of the visual system depends on the interconnectivity between the eye and the brain. Recent evidence suggested that the visual brain is involved in early mechanisms of eye diseases such as glaucoma, whereas treatment to both the eye and the brain for some eye diseases may result in better outcomes than treating the eye alone. Upon loss of visual input from the eye, the visual brain may also adapt by enhancing alternative inputs through other senses even in the adult stage. This talk will introduce the potentials of advanced non-invasive MRI of the eye and the brain in health and disease for determining the mechanistic processes for microstructural reorganization and functional recovery in vivo during visual brain plasticity. Specifically, we will discuss about our preliminary findings and future plans on the structure-function relationships and longitudinal assessments of glaucoma in the visual brain; neuroplasticity in neonatal injury and optic nerve regeneration; brain mechanisms of sensory substitution in the blind using tongue vision; and development and applications of novel in vivo MRI contrasts for visualization and quantification of normal, developing and injured visual systems.

**Biography of the speaker:**

Dr. Chan is a Research Assistant Professor of the Departments of Ophthalmology and Bioengineering at the University of Pittsburgh, and a faculty member of the Center for the Neural Basis of Cognition at the University of Pittsburgh and Carnegie Mellon University. Since 2011, he has been directing an MRI research program on structural,

metabolic and functional imaging of the visual system in health and disease at University of Pittsburgh. Dr. Chan is a Junior Fellow of The International Society for Magnetic Resonance in Medicine and a 2009-2010 Fulbright Scholar. Dr. Chan received his Bachelor in Medical Engineering and Ph.D. in Biomedical Engineering from The University of Hong Kong in 2006 and 2010 respectively, and was a recipient of 5 academic prizes, including the Li Ka Shing Prize and Swire Scholarships at The University of Hong Kong.

**Organizer:** Prof. E.X. Wu