



## **SPECIAL SEMINAR**

# **The Thalamic Visual Prosthesis Project**

**Monday November 5<sup>th</sup> 2012**

**14:00-15:00**

**Seminar room IΣ2 (Ground floor)**

**Speaker:**

**John S. Pezaris, PhD**

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## **ABSTRACT:**

The field of visual prosthetics has concentrated primarily on two targets for stimulation, the retina and the primary visual cortex. The lateral geniculate nucleus of the thalamus, the relay station between these two areas, has been largely ignored because of the difficulty of surgical approach. The development of deep brain stimulation techniques for addressing pathologies of the midbrain has opened surgical access to the thalamus, and motivates a reconsideration of targets for visual prosthetics.

With this background, we have performed experiments in an animal model to demonstrate a proof of concept for a visual prosthesis based on thalamic microstimulation, followed by an experiment in a computer model to set basic engineering parameters for a thalamic prosthesis, in turn followed by a series of experiments with sighted humans to assess design performance. In this presentation we will review the compelling motivation for the thalamic approach, review the experimental results thus far, and provide a preview of future work.