

Summer Research Program 2011/2012***Project Title: Biocompatible coatings for neural electrodes used in the bionic eye*****Supervisor: A/Prof John Forsythe, A/Prof Ramesh Rajan****Email: john.forsythe@monash.edu.au****Phone: x59609****Department: Materials Engineering**

Objective

The objective of the research program is to develop coatings for neural electrodes implanted in the visual cortex. The coatings are designed to reduce the extent of inflammation and to ultimately improve signalling to the brain.

Description

The project will involve the modification of neural electrodes (tungsten, platinum and silicon) using layer-by-layer (LbL) deposition. The coating method is solution based and is therefore effective for irregular shaped surfaces. It involves the sequential deposition of alternating charged polyelectrolytes, which are carefully selected to render the surface biocompatible.

The research will involve functionalising the LbLs with anti-inflammatory molecules and characterising the coatings using confocal microscopy and quartz crystal microbalance. The electrodes will be implanted into the visual cortex of rats and the associated inflammation assessed using immunohistochemistry.