NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Physical and Mathematical Sciences
College of Science

ORAL DEFENCE ANNOUNCEMENT

THAM GUO XIONG

ELECTROCHEMISTRY OF THIN FILM ELECTRODES VIA SURFACE MODIFICATION

Surface modification of electrodes is a common experimental method used in electroanalytical chemistry. This thesis focused on three major areas with the surface modification of glassy carbon (GC) electrodes. In the first part, a vitamin-based voltammetric pH sensor that functions in buffered and unbuffered media was developed on the basis of a pair of pH-sensitive and pH-insensitive redox active vitamin compounds. Secondly, the electrode kinetics of modified electrodes in the bulk solution were examined with: (1) the dispersion of functionalised carbon nanotubes with various weight percentages in various solvents, and (2) different classes of surfactants with varying concentrations in the bulk solution. Finally, the electrochemical energy storage capability of a electrochemically co-polymerised film electrode was studied with electrochemical tests conducted to examine the electrochemical properties of the co-polymeric film.

Date: 29 May 2020
Time: 3pm
Supervisor: Assoc Prof Richard Webster
Co-Supervisor: Dr Adrian Fisher