The Electrochemical Society

Seminar Notice: Monday, March 26th, 2012

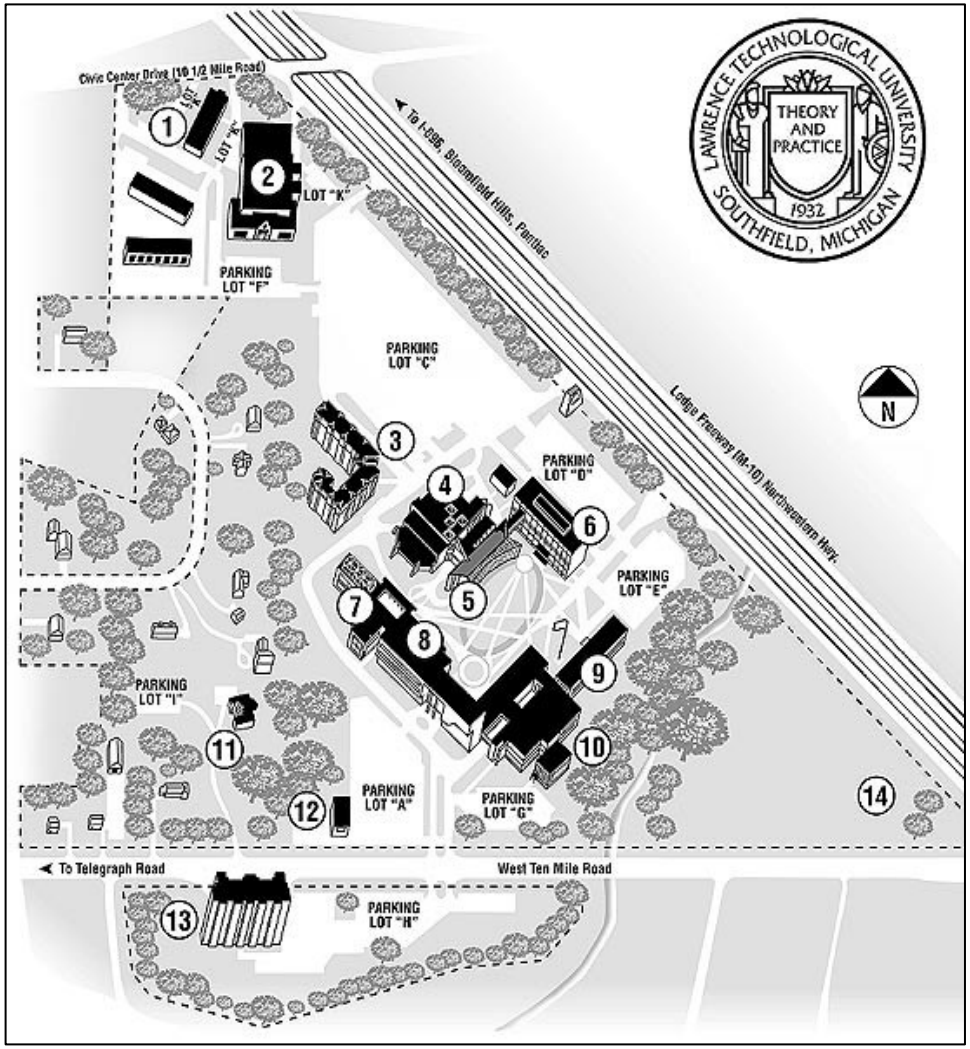
Fast Scan Cyclic Voltammetry at Ultra-Microelectrodes: Probing Delicate and Hard to Reach Places

Dr. Parastoo Hashemi

Assistant Professor of Chemistry, Wayne State University, Detroit

Ultra-microelectrodes show high applicability in the study of biological systems, in particular, the brain. The brain is a chemically intricate organ, controlling every aspect of our bodily functions and behaviors. Our modern lifestyles present positive and negative facets to our well-being; while many of us will live longer, healthier lives than our parents, diagnoses of diseases of old age such as Parkinson's and Alzheimer's diseases are increasing. Moreover, the incidences of mood disorders such as depression and substance abuse are surging. There is hence, now more than ever, an increased social consciousness towards prevention and treatment of such disorders. Understanding the underlying chemistry of the brain is the key to this. There are several challenges to analyzing brain molecules; first, the brain's chemical communication junctions, synapses, are on nanometer scales, therefore the implanted device or probe must be small enough not to damage these. Secondly, because chemical events occur on a rapid time scale, the resolution of the probe must have sufficient speed. Thirdly, as there are chemically similar species in the synapse, the technique must have a high degree of discrimination between them. Finally, these species are present in low concentrations; hence the probe must display high sensitivity. The speaker will describe fast-scan cyclic voltammetry (FSCV) as an ideal tool for neurochemical analyses. The application of FSCV to monitoring the chemicals dopamine and serotonin in the rodent brain will be outlined as a pathway to understanding diseases and disorders such as Parkinson's disease, drug addiction and depression.

Date: **Monday, March 26th, 2012**
Location: Lawrence Technological University
21000 West Ten Mile Road, Southfield, MI 48075
Building #5 (Taubman Welcome Center), 4th Floor, Room 406
Use Parking Lot A, C or D (Lots C & D are accessed off NW Highway)
Time: 5:30 pm Reception / 6:30 pm Dinner / 7:30 pm Speaker
Price: $20 Members / $22 Guests / $10 Students **Payment**: Cash or Check
RSVP by: **March 19th to Dr. Stephen Maldonado**
smald_at_umich_dot_edu
http://www.electrochem.org/ecs/sections/detr/detr.htm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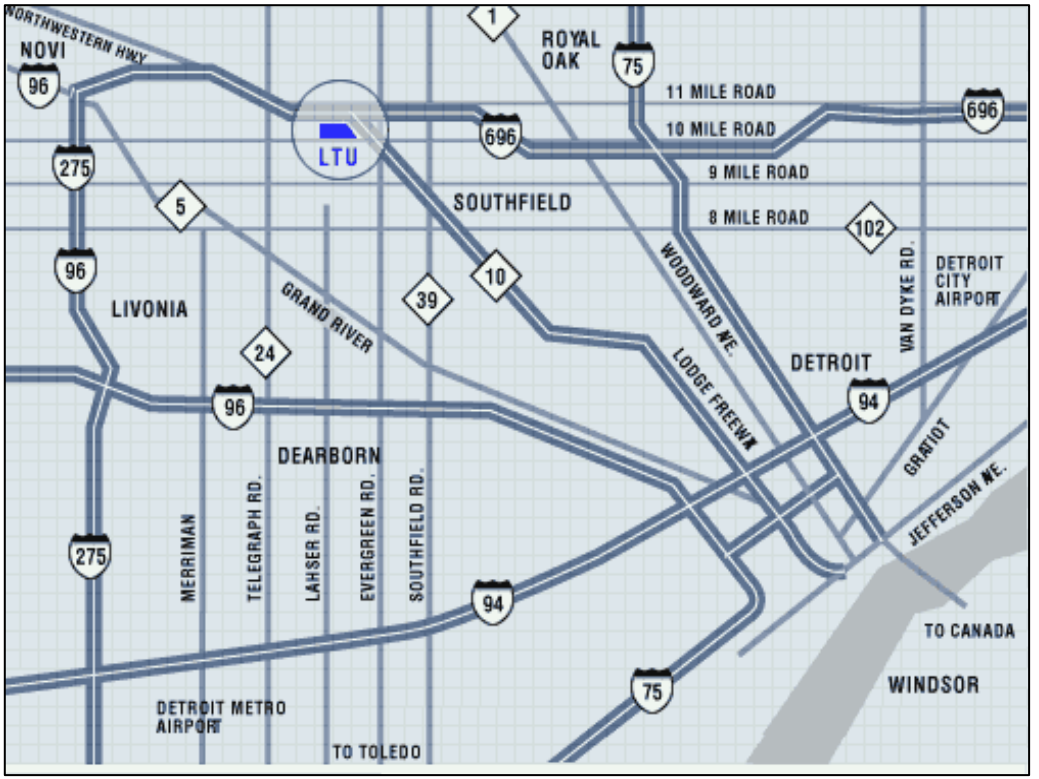
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