

Colloquium Notice

Professor Adam Heller

Department of Chemical Engineering, University of Texas, Austin

Electrochemistry of Diabetes Management: Lessening the Pain and the Worry

About 6 billion glucose assays are performed each year by self-monitoring diabetic people. Obtaining the required blood samples was painful until TheraSense, the company founded by Ephraim Heller and Adam Heller reduced the required blood volume to 300 nL, a volume so small that it can be painlessly obtained. The painless assay, based on thin-layer micro-coulometry, is also accurate, because the outcome of the measurement does not depend on temperature, viscosity, or activity of the bioelectrocatalyst. TheraSense was acquired by Abbott Laboratories and the micro-coulometric system, named FreeStyle, is available world-wide. With the intent of removing the worry of diabetes, Adam Heller designed a continuous glucose monitoring system, FreeStyleNavigator, in a collaborative project with colleagues at the University of Texas in Austin and TheraSense, then Abbott Diabetes Care. It monitors the glucose concentration amperometrically, the glucose being directly and selectively electro-oxidized on an electrode having a unique bioelectrocatalyst. The catalyst comprises the enzyme glucose oxidase and an electron-conducting redox hydrogel electrically connecting the redox centers of the enzyme to an electrode. The turnover of the enzyme is observed as an electrical current. The user replaces the sensor implanted under the skin every five days. The system alerts the user to actual and impending high or low glucose concentrations.

[Poster file \(pdf\)](#)

Notes: Department of Chemistry and Biochemistry, Queens College of CUNY. Lunch to follow the seminar at The Agora Restaurant.

Wednesday

May 28, 2008

Starts at 12:15 PM

Coffee at 12:00 PM

Rosenthal Library, 5th Floor, President's Conference Room