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Acquisition of an Electrochemical System Instrument for the Development of Sensors

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Provost's Grants for the *Thinkfinity* Initiative: Innovative Teaching, Technology and Research

Title of Project: Acquisition of an electrochemical system instrument for the development of sensors

Research

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September 13, 2013

Progress Report:

A. Outline of Original Goals.

This project has two objectives, which is to purchase an electrochemical system instrument/workstation and to utilize the purchase instrument for research in developing sensors for chemicals of interest in biological, forensic, chemical and environmental sciences.

B. Progress Made Towards Original Goals

The electrochemical system was already purchased and delivered from BASi before the end of August thus fulfilling the main objective. We are looking for a spare personal computer (pc) around the department that will be used with the instrument. We will install the software that will run the instrument once we will have the pc. We are also awaiting some electrical parts needed to set-up the system. We are hoping that the system will be operational by the end of September. In addition, three books on electrochemistry were also purchased and delivered.

In terms of the other goal, two students have been line up to do research using the instrument. Both of them are helping me up in setting-up the system and doing literature search for the projects that they will do. We are also waiting for some reagents funded from another project that will be used for research to be delivered. We are hoping once it is operational, we can gatherer enough data for presentation of posters for an ACS National Meeting in Spring.

C. Impact of Project on Students

At present, the project will have an impact directly on two students who will do research using the instrument. There is also a plan to use it in a demo experiment that will be shown to 13 students enrolled in CHE 221 and 5 students enrolled in ENS 622 this semester.

D. Impact of Project on Other Faculty Members

Since the instrument is only being presently installed, there is still no impact on other faculty. Prof. Zhaohua Dai, a colleague from my department, have expressed interest in the use of the instrument once it is operational.

E. Next Steps

The instrument will be the heart and soul of a research program that aims to develop sensors for chemicals of interest in the fields of chemistry, forensic science and environmental science. It is expected that undergraduate students will use the instrument for research. Results from the research will be presented in scientific meetings. In addition, the instrument will be utilized not only in research but also in teaching. It is expected to be utilized in CHE 331. An experiment will be developed and will be included as a laboratory activity of CHE 331. Another plan is the development of a graduate course based on Electrochemistry that will cater on Forensic Science students with the instrument as the center piece of all the laboratory experiments.