



Interdisciplinary Research Club

Volume 2 • Issue 4

November 17, 2004

Symposium a Success!!

Students make plans for next year's event

Mole Day. October 23, 2004 will long be remembered as the day that started it all. It was on this day that the graduate students of Cleveland State University's College of Science hosted our 1st Annual Regional Symposium. A crowd of over 70 registrants (plus nearly 200 from ACS during the afternoon session) gathered to actively participate as eight oral presenters and thirty poster presenters competed for a total of eight awards. We had a full day of events that included continental breakfast, guest speakers, oral presenters, lunch, the Galileo Players, poster presentations, hors d'oeuvres, \$1750 in cash awards, prize giveaways and much more. It was a lot of work for everybody involved, and well worth every bit of effort.

If you are one of the few club members that did not make it to the symposium, we have good news for you. The Cleveland State University Graduate Student Interdisciplinary Research Club announces its 2nd Annual Regional Symposium to be held in November 2005. Next year's symposium promises to be bigger, better, and more

far-reaching than this year's event. We plan to have more involvement from undergraduate students, more students from other universities, and more involvement from non-chemistry majors (it is, after all, an interdisciplinary research club).

Award Winners

Congratulations to all the award winners from the 1st Annual Regional Symposium:

Nelson C. Yee, *CWRU 1st Place Oral Presentation Award*

Meredith Crosby, *CWRU Oral Presentation Award*

Shu-Ling Liang, *CSU Oral Presentation Award*

Lemin Zheng, *CSU Oral Presentation Award*

John O'Flaherty, *CSU 1st Place Poster Presentation Award*

Jean Boutros, *CSU Poster Presentation Award*

Tivi Orban, *CSU Poster Presentation Award*

Andrea Landanyi, *CSU Undergraduate Poster Award*

Nyoka Lovelace, *CSU Undergraduate Poster Award*

Kumar Arora, *Ohio State Undergraduate Poster Award*

Thank You Student Volunteers!

We couldn't have pulled off a great event like this without the tireless help of the CSU graduate student volunteers.

Charbel Abou-Diwan

Jean Boutros

Melissa McCulloch

Deley Sulton

Ian Atkinson

Jim Hribar

John Moran

Yan Zhou

Melissa Blum

Li Ling

Tivi Orban

Mike Tyrrell

Thank You Sponsors!

Even with the myriad of student volunteers, we still rely heavily upon the support of the CSU community and all of our generous corporate sponsors. We couldn't have done it without your encouragement and your financial support.

Alfa Aesar

Amalgamated Tuna Company, Inc.

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CSU College of Graduate Studies

CSU College of Science

CSU Department of Chemistry

Dr. Lily Ng

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We thank **Dr. Richard Rakos**, Associate Dean College of Graduate Studies, and **Dr. Stan Duraj**, Chairman Department of Chemistry for delivering the opening addresses at our symposium. We also thank **Dr. Mary Jane Saunders**, Interim Dean College of Science for taking time out of a very busy Saturday schedule to deliver words of inspiration in her afternoon keynote address. Finally, we thank **Dr. Mekki Bayachou**, our faculty advisor, for his yearlong support, his energy, and his persistent drive that made this symposium and this research organization a huge success.

Student News

Several of our graduate students have recently defended their proposal for Ph.D. candidacy.

- **Anne O'Connor** defended her proposal *Modulation of Osteogenic Potential in Electromechanically Active Artificial Bone Cell Scaffolds*. Anne's advisor is **Dr. John F. Turner II**.
- **Yan Zhou** defended *The mechanism of IFN gamma induced HL-60 cell apoptosis*. Yan Zhou's advisor is **Dr. Aimin Zhou**.
- **Chandar Thakur** defended his proposal *Identification and Characterization of Small Molecule Activators of RNase L*. Chandar works in the laboratory of **Dr. Robert H. Silverman**.

Congratulations to all of you!

Past Business

It seems like so long ago, but we would like to thank our last guest speaker, Damascus, Syria native **Fares Masri**, who gave a great talk about *Nitration Modification of Proteins in Lung Cancer*. Shookran jazeelan, Fares!

At our last meeting we began the electoral process by beginning to nominate candidates for 2005 Club Officers and selecting a date for elections. The election is set for Friday December 17, 2004. To date, we have candidates for three of the four offices. **Melissa Blum** has accepted nomination to run for Secretary, **Deley Sulton** has accepted nomination for Vice President, and **John Moran** has accepted a nomination for President. We welcome any other candidates who would like to throw their hat into the ring. Nominations can be made up to the day of election. We do not currently have a candidate for Treasurer. This position is very important, as we need a capable person to keep track of our yearly budget which is expected to grow over the next couple of years as the operations of our club continue to expand.

We discussed the subject of expanding our group beyond the CSU chemistry department and asked ourselves how we could make our organization truly interdisciplinary. We agree that we need to expand to include other scientific disciplines, but we must take it one step at a time. The first logical step is to encourage students from biology to join our meetings. We agreed to contact all biology students and professors from the BGES Department by e-mail and invite them to join our meetings.

Group Meeting Schedule

Our 2004 meeting schedule follows:

Friday November 19th

Speaker Pubudu Peiris

Friday December 3rd

Speaker TBA

Friday December 17th

Elections

Our next scheduled meeting date is **Friday November 19, 2004 at 5:00 PM in SI398**. Food and refreshments will be provided. Our guest speaker is Pubudu Peiris, who will give a presentation entitled *Carbon Sensors Modified with Nanostructured Catalyst: Fabrication, Characterization, and Application in Nitric Oxide Detection*. An abstract of Pubudu's presentation follows.

Abstract

Carbon single-fiber microelectrodes and carbon paste electrodes modified with nano-structured transition metal catalyst were fabricated and characterized by scanning electron microscopy. The modified sensors were tested for the oxidation of nitric oxide in solution in the nanomolar to micromolar range at physiological pH.

Modification of carbon paste-based sensor dramatically improved the analytical performance of the electrode for nitric oxide detection, with about ten-fold increase in sensitivity (85-100 pA/1nM) versus the non-modified sensor. The modified paste exhibits a detection limit as low as 100 pM, with a linear range extending to ~100 μ M range.

Likewise, carbon fiber modified with nano-structured catalyst had a five-fold increase in sensitivity, namely 1pA/1nM, with a lower detection limit of about 50pM, compared to a bare carbon fiber.

The performance of these improved NO sensors is being exploited to quantify electrochemically-driven NO-biosynthesis on NOS oxygenase modified electrodes.