

**Interfacial and Processing Sciences**  
*News Notes*

**Environmental and Molecular Sciences Laboratory**  
**Pacific Northwest National Laboratory**

The Interfacial and Processing Sciences Directorate in EMSL is establishing News Notes to help keep our Users and others who have had a connection with us up-to-date on activities, events, capabilities, and interesting results, including short summaries of the work of users. We do not expect these notes to be formal or lengthy.

If you receive this message directly, you are on our address list. If you want to receive the Notes, you need to do nothing. If you would like to be removed from the list, please respond by email to [terry.law@pnl.gov](mailto:terry.law@pnl.gov). If this message has been forwarded to you, please contact Terry if you want to be added to the email list.

**EMSL USERS Meeting**

The first EMSL Users Meeting will be held from Friday, June 11 through Monday, June 14 at the EMSL- *mark your calendars!* There will be a few plenary lectures, 4 mini-symposia, a couple of poster sessions, a User's Organization Meeting and several tutorials/short courses. All of this will be designed to encourage new users and to show the activity already occurring in EMSL.

Tentative highlights:

Mini-symposia (titles aren't finalized):

- 1) physics & chemistry of oxide surfaces (Scott Chambers, 6/11-12)
- 2) heterogeneous processes in the troposphere (Rod McDowell, 6/13-14)
- 3) structural genomics (Mike Kennedy, 6/11-12)
- 4) molecular aspects of subsurface phenomena (Jim Amonette, 6/13-14)

Tutorials:

- 1) NorthWestChem/ecce tutorial
- 2) "hands on" surface analysis tutorials
- 3) EMS Collaboratory

**Interfacial and Processing Science User Activity**

The number of uses of I&PS capabilities has been consistently high. In addition, over the first quarter of the fiscal year, there were 35 new users from outside of PNNL and 23 users from non-EMSL parts of PNNL. Although we usually have a significant number of users and students in the summer, we learned that because of semester changes, school breaks, and different schedules in other parts of the world January may become our second busiest time of the year.

The EMSL continues to see a broad spectrum of research and an international user response. In just the last few months, we have had users from as far away as Italy, Korea, and Australia, and research has ranged from examination of ancient brass fragments from Greece to examination of the skins of damaged fruit. Results from research conducted at the EMSL appeared on the December cover of *Analytical Chemistry*.

**Surface and Interface Laboratory**

The surface and interface analysis laboratory in general and the XPS instruments in particular have been very busy. If your research activities depend upon these capabilities, please communicate with laboratory staff to try and schedule your work as far ahead as possible.

Over the past 6 months we have added staff to the laboratory. **Dr. Thuy Tran** has taken primary responsibility for operation of the TOF-SIMS. Although she is still learning aspects of the instrument operation, she has enabled us to be much more responsive to meeting SIMS analysis needs. **Glen Dunham** has taken a major role in the operation of the Kratos Axis 165, our multi-technique surface analysis system with AES, XPS, SIMS and ISS capabilities. We will soon be adapting this instrument for some network control as part of the EMSL collaboratory. This past fall, both of these instruments have had significant upgrades in the operation systems, enhancing the operation. Mark Engelhard (for the Quantum XPS) and Scott Lea (for the 680 AES) are primary contacts for their instruments.

A tutorial on some of these capabilities will be held as part of the EMSL users meeting.

### **Presidential Award**

**Dr. Mari Lou Balmer**, Staff Scientist in the Colloids and Materials Design Group, is a recipient of the 1998 Presidential Early Career Award for Scientists and Engineers. Balmer received her award at a White House ceremony in early February. She also won a 1998 Energy Research Young Scientist Award from the U.S. Department of Energy.

Balmer was recognized for her seminal contributions in advancing scientific knowledge in two important environmental areas: 1) the study of new catalytic processes that can be used to reduce air pollutants emitted in automobile exhaust and 2) the study of novel materials that can be used to selectively isolate radioactive materials (specifically cesium and strontium) from large volumes of extremely hazardous waste stored at Department of Energy sites around the United States. In July 1997, she made an invited presentation on her research at a national review on the Partnership for a New Generation of Vehicles, a program sponsored by Vice President Al Gore.

### **Search for New Associate Director for I&PS**

Dr. Bill Kuhn who served for more than a year as an interim Associate Director for I&PS took over new responsibilities as of October 1. Since that time Chuck Peden and Don Baer have handled the AD responsibilities on an interim basis. A search committee is conducting a national search and now interviewing candidates for this position.

### **I&PS Contacts**

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Group Leaders:  
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