

# engineers

## February 2001

### Journal Publications

Dr. Kimberly Ward Anderson's, chemical engineering, paper "Detection of biotin in individual sea urchin oocytes using a bioluminescence binding assay" (with A. Feltus, A.L. Grosvernor, R.C. Conover, S. Daunert) in *Analytical Chemistry*, is in press, 2001.



Dr. Stephen Gedney, electrical engineering, has published the paper "Convolutional PML (CPML): An Efficient FDTD Implementation of the CFS-PML for Arbitrary Media," (with J. A. Roden), in *Microwave and Optical Technology Letters*, vol. 27, No. 5, December 5, 2000. He has also authored the paper "High-Order Nyström Solution of the Volume EFIE for TE-Wave Scattering," (with G. Liu) in *Electromagnetics*, Vol. 21, pp. 1-14, January-February 2001.



## Books and Other Publications

Dr. Kimberly Ward Anderson, chemical engineering, has the invited book chapter "Adhesion of Cancer Cells to Endothelial Monolayers: A Study of Initial Adhesion vs Firm Adhesion", (with M. Moss) in Particle Adhesion: Advances and Applications, Eds: D. Quesnel, D. Rimai, L Sharpe, in press.

## Presentations

Dr. Kimberly Ward Anderson, chemical engineering, gave an invited seminar in the Department of Chemical Engineering at West Virginia University on February 2. Title of her talk was "Inhibition of Biofilm Formation Using Enzymes" and is a result of collaborations with Dr. Leonidas Bachas, UK Department of Chemistry, and Melanie Loiselle, chemical engineering doctoral student, working with Dr. Anderson and her research group.

Dr. Nick Stamatiadis, civil engineering, presented the paper "Speed Moderating Techniques for Urban Areas: A European Perspective" at the 80th Annual Transportation Research Board meeting in Washington DC (January 2001). Dr. Stamatiadis, along with Adam Kirk (CE senior) presented the paper "Crash Rates and Traffic Maneuvers of Young Drivers" at the same meetings.



## Research Funding

Drs. Stephen Gedney and Caicheng Liu's, electrical engineering, proposal "Advanced Electromagnetic Modeling" has been funded by DARPA's Virtual Electromagnetic Testrange (VET) - Wide Band CEM Techniques Program. The grant will run from 2/1/01 - 1/31/02 and was funded for \$305,00.

## Professional Activities



Sue Scheff, Women in Engineering, was on the program for the first "Women in Science, Mathematics, Engineering and Technology Roundtable" meeting hosted by Chancellor Elizabeth Zinser on Wednesday, January 31, 2001, at the UK Hilary J. Boone Faculty Center. Participants from universities across the state of Kentucky attended.

## Miscellaneous

EE 599 - Wireless Communications is a new course offered in the Department of Electrical Engineering beginning the Spring 2001 semester. Taught by Dr. Keith Whites, this course is

based on the new book *The Electronics of Radio* by David Rutledge of the California Institute of Technology.



The course teaches the theory and practical elements of analog RF communications through a combination of course work and extensive laboratory experience. For the latter, the students assemble a 40-m CW (i.e., Morse code) transceiver piece-by-piece throughout the semester in a well-orchestrated series of 39 exercises. Nearly every lecture has associated laboratory work. The transceiver is the popular NorCal40A described in detail at <http://www.fix.net/~jparker/wilderness/nc40a.htm>.

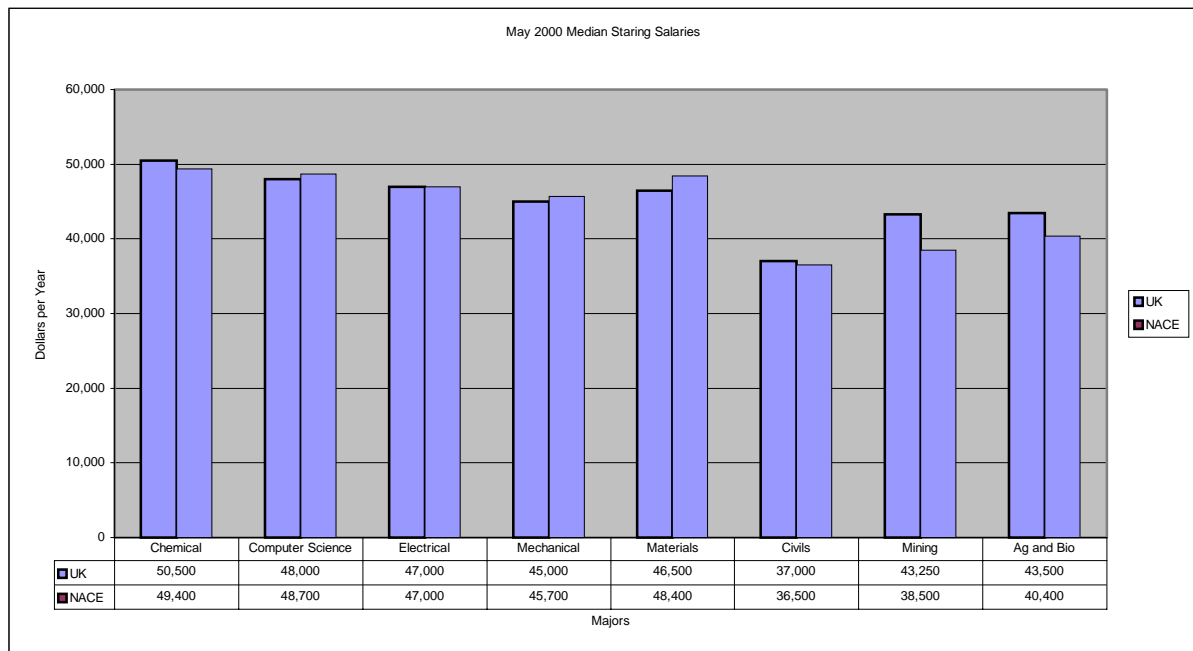
Initial funding for this course has been provided through approximately \$40K from the Kentucky Council on Postsecondary Education as well as another \$5K or more from the Department of Electrical Engineering. Given the large emphasis on laboratory work, it was imperative for the success of the course that the proper measurement equipment be available to the students, as was purchased using this money.

The UK Board of Trustees at its meeting on December 12, 2000, approved the establishment of the Center for Micro-Magnetic and Electronic Devices. The Center will

initially establish strong collaborative ties between the Departments of Electrical Engineering and Chemical and Materials Engineering to integrate intelligent micro and nano-dimensional devices into bioimplants/bioprobes that will add to the utility of these products.

### Starting Salaries for Spring 2000 Engineering Graduates Reported

The Engineering Employment Processes Team tracks graduating seniors and has the charge of reporting "official" starting salaries for undergraduates five to six months after graduation. The graph below has those numbers compared with national reports by NACE, the National Association of Colleges and Employers. These figures are for B.S. degrees.



Other comments:

Seniors used all of the Engineering Career Services in spring 2000. Many reported receiving job offers following interviews at the Career Center. The new online Cybercat and Kimberly Coleman's efforts are greatly increasing traffic to the Career Center.

Students reported job offers and/or internships resulting from attendance at the October Career Fair. Both in fall 1999 and fall 2000, numbers of employers attending the fair were at capacity and some late registrants had to be turned away.

Many students reported finding positions because their resumes were included on the college's senior resume disk. (Lou Takacs does the majority of the work in clearing the resumes and mailing the disks out). We think that the on-line Cybercat will eliminate the extensive mailing of resume disks in the future.

Alternating co-op played a significant role in the May 2000 graduating class.

1/3 of the CME grads had at least three semesters of co-op experience

1/4 of the CE grads had at least three semesters of co-op experience

1/4 of the CS grads had at least three semesters of co-op experience

1/2 of the EE grads had at least three semesters of co-op experience

1/2 of the ME grads had at least three semesters of co-op experience

(these numbers do not include international students)

About 50% of the co-op grads stayed with their co-op employers after graduation.

Several students reported contacts through faculty. We have a void in our knowledge of graduate students' activities.

Early offers being received by May 2001 graduates show salaries continuing to rise. The early figures are always above the national average. These salaries are usually earned by students with experience in co-op or internships who know the employment processes staff and report in early. The students we track after graduation then bring those average salaries down in line with national averages.

## Events

Introduce a Girl to Engineering Day will be held, Friday, February 23, 2001. This event was designed especially to introduce female high school students to the field of engineering. A full day of activities is planned. The day's keynote speaker is Elaine Duncan, President, Paladin Medical, Inc., Stillwater Minnesota, a (BSME '74) and Hall of Distinction inductee. Other activities include a panel discussion by women engineers on "Do I Love my Work, Let me Count the Ways". The always popular student breakout sessions with the visiting high school students, laboratory demonstrations, and tours of Engineering facilities round out a fun and informative day. For more information, contact Sue Scheff, at 7-4178 or <mailto:sscheff@engr.uky.edu>.

Engineers Day Open House will be held Saturday, February 24 from 9 am - 1 pm. Volunteers are still needed. If interested, contact Dr. Donn Hancher at 7-3857 or [hancher@engr.uky.edu](mailto:hancher@engr.uky.edu).

In conjunction with EDay, the Minority Engineering Program Pizza Luncheon/Panel Discussion will be held. The event is open to high school students (and their parents) interested in engineering and computer science. The Panel Discussion will feature minority engineers working in industry, and current UK minority engineering and computer science students and faculty. This event will take place immediately after Engineers Day Open House activities have concluded at 1:00 pm in Room 323 of the Center for Robotics and Manufacturing Systems. If you are interested in attending, contact Taunya Phillips, director of minority engineering, no later than February 21, 2001 at 859-257-1080, or by e-mail <mailto:tphillips@engr.uky.edu>.