

FIU Chemistry Newsletter

Vol. 1, Issue 1

March 10, 1998

Come Celebrate with Us

Place: *Chemistry/Physics Bldg.*

Room: *CP 320*

Date: *April 4, 1998*
5:30 p.m.

RSVP: fax or email response before March 27.

FIU is 25 years old – oops! I mean – 25 years young! We want to celebrate the past 25 years and prepare for the next 25 years by having a party. Plan to spend an evening with some of your old friends (and Chemistry faculty too!). Don't be shy; bring your spouse or a friend. **We'll supply the refreshments while you have a great time!**

The Chemistry Awards banquet will immediately follow. The cost for the banquet is \$20 (payable in advance). Attendance at banquet is optional. Guest Speaker is Dr. Donald Kerr, Director of the FBI Laboratories

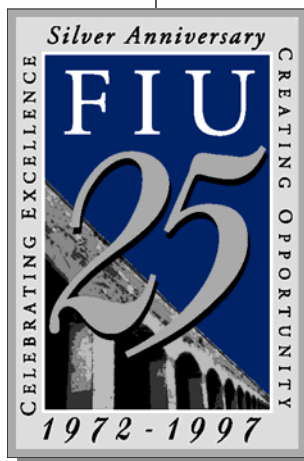


Chemistry and Physics Building

Twenty-five Years and Still Growing

This year is the 25th anniversary of the opening of classes at FIU and this year the Board of Regents authorized the Chemistry Department to offer the Doctor of Philosophy degree. The department added three new

faculty members this year to meet its continuing enrollment growth and plans are underway to hire two additional new faculty during the 1997-98 academic year. There are currently eighteen chemists on the faculty in the Department of Chemistry. The Master of Science degree program is now ten years old and has over 20 graduates and nearly 30 current students. Members of the faculty are developing research programs, which are attracting considerable funding to support new



graduate students as well as to purchase new instrumentation within the department. It looks as though the Department of Chemistry will continue its rapid growth for at least the next several years as both

the graduate and undergraduate enrollment continues to increase.

Growth in the undergraduate program is amazing! The department currently offers 37 sections of introductory chemistry laboratories, serving a total enrollment of approximately 800 students each semester. Organic chemistry has also grown and there are over 300 students taking organic chemistry each term. Enough aspirin is synthesized each term that we could supply a pharmacy.

A New Chairman



Kenneth Furton -at work

This past spring the department elected Dr. Ken Furton to serve as chairman for the upcoming three years beginning in the fall term 1997. Dr. Ramon Lopez de la Vega served as chairman from 1994-1997 and was eager to return to the lab. Dr. Furton's term as chairman, while just beginning, is shaping up to be an active one as the department begins to implement the new Ph.D. program.

Ken Furton graduated from the University of Central Florida in 1983. He received a Ph.D. from Wayne State University in 1986, and completed a postdoctoral fellowship at the University of Wales - Swansea. He joined the FIU faculty in 1988 and was the Graduate Program Director from 1994-1997. In addition to his new duties as chair of the department, Dr. Furton is also Director of the newly established International Forensic Research Institute, based in the Department of Chemistry. This promises to be a very busy year for Dr. Furton as he continues his many research programs

Inside....

<i>Instrumentation Upgrade</i>	<i>2</i>
<i>Faculty News</i>	<i>2</i>
<i>Student News</i>	<i>4</i>
<i>Alumni News</i>	<i>5</i>
<i>Graduate Program News</i>	<i>5</i>
<i>Forensic Research Institute</i>	<i>6</i>

Faculty News.....

Three New Faculty Join the Department.

Dr. Yong Cai, Area: Analytical Chemistry and Environmental Chemistry of Organometallic Compounds. Dr. Cai received his Ph.D. in 1989 at Nankai University in China and has spent the intervening years in building a reputation for himself as one of the foremost experts in the detection of organometallic compounds in the environment. He spent 5 years in Germany and Spain and then he, his wife, Yin and their son came to the U.S. where he has been working for two years at the Southeast Environmental Research Program. His interests are currently devoted to developing analytical methods to identify the organometallic forms of mercury, lead, arsenic, tin and selenium in a variety of

FIU Instrumentation Facilities Upgraded

The department of chemistry has recently significantly upgraded their instrumentation facilities. The old GE QE 300 MHz nuclear magnetic resonance spectrometer has been replaced by a brand new 400 MHz Bruker NMR Spectrometer with multinuclear and Variable Temperature Capabilities. This coupled with the new FT-IR (Nicolet ESP 560) and the previously existing UV-visible and fluorescence spectrometers, make up the Spectroscopy Laboratory situated in CP 343. Additionally, In January 1998, the department was fortunate to be awarded a QIP award of \$500,000 to develop a mass spectrometric facility. Initially, the department is purchasing a GC/FT-IR/MS (Gas Chromatograph/Infrared/Mass Spectrometer), ICPMS (Inductively Coupled Plasma/Mass Spectrometer) and LC/MS (Liquid Chromatography/Mass Spectrometry). This Mass Spectrometry Facility will be situated in the Chemistry and Physics Building and will be online sometime

environmental samples. Dr. Cai published the first conclusive evidence for the presence of the organometallic compound, ethylmercury, in the environment using GC-Atomic Fluorescence Spectrometry methods here at FIU. This last year Dr. Cai published several papers in Analytical and Environmental Chemistry, Anal. Chim. Acta, **334**, 251-259 1996 and Environmental Science and Technology, **34**, 302-305, 1997. This year Dr. Cai will be attending the First Industry/Academe symposium on Marine and Environmental Chemistry organized by the South Florida Section of the American Chemical Society. He will present his findings on the dissolved organic carbon and mercury species in the Florida Everglades and results on the use of SPME-AFS for mercury analysis.

Dr. Piero Gardinali, Area: Analytical and Environmental Chemistry. Dr. Gardinali is originally from Venezuela where he received his masters degree in Analytical Chemistry from Universidad Simon Bolivar. He received his Ph.D. in Chemical Oceanography from Texas A&M University. He brings to the department extensive experience in the field of environmental chemistry and mass spectrometry. Dr. Gardinali is interested in the analytical chemistry of persistent organic contaminants; source and fate of xenobiotics in the environment with special regard to dibenzo-p-dioxins, dibenzofurans, non-, mono- and di-ortho substituted PCBs; distribution and equilibria of organic contaminants in marine and freshwater ecosystems; design and implementation of microscale trace organic analytical methods in biotic and abiotic environmental samples and assessment of environmental toxicants using biomarkers of exposure. Two papers which have recently appeared on these topics by Dr. Gardinali are found in; Archives of Environmental Contamination and Toxicology, **32**:18 1997 and Chemosphere, **32** (1):1 - 11, 1996

Dr. Stanislaw Wnuk (pronounced V-nook) Area: Organic, Bioorganic and Medicinal Chemistry. Dr. Wnuk and

his family come to FIU from Brigham Young University in Provo, Utah where he was a Research Associate Professor of Chemistry. He originates from Poland. He received his Ph.D. in 1983 at Adam Mickiewicz University in Poznan, Poland and later the D.Sc. in 1995. He has published extensively in the field of medicinal chemistry and will be developing a research program in the organic chemistry of nucleosides and nucleotides here at FIU. The objectives of this research are to synthesize new compounds with anticancer and/or antiviral activity. One aspect of Dr. Wnuk's research is the application of fluorination methods in the synthesis of fluoro-nucleoside analogs. During the last year Dr. Wnuk has published three papers on these topics; J. Med. Chem. 1996, **39**, 4162; J. Med. Chem. 1997, **40**, 1608; J. Am. Chem. Soc. 1997, **119**, 3637. Dr. Wnuk is already planning ahead for next year. He plans to travel to France for an International Symposium next September. He hopes to present the results of his current research at the 13th International Round Table on Nucleosides, Nucleotides and their Biological Applications to be held in Montpellier, France.

Other Faculty News.....

Dr. Yiwei Deng Dr. Yiwei Deng attended an International Symposium (The Eleventh International Symposium on High Performance Capillary Electrophoresis and Related Microscale Techniques) held in Orlando, Fl., USA, Feb. 1-5, 1998 and presented the results of two current research projects: (1) Separation and Quantitative determination of phenolic acids by capillary electrophoresis, and (2) Factors affecting the major inorganic chemical species in rainwater collected in South Florida. This work was conducted mainly by Dr. Deng and her students Xiaofang Fan, Artemio Delgado and Christine Nolan.

Dr. Kevin O'Shea is on sabbatical leave at Georgia Institute of Technology working with Dean and

Faculty News - Continued

Professor of Chemistry, Gary B. Schuster, on a project investigating PNA (peptide nucleic acid) thymine dimers and their ability to be repaired by and/or inhibit the enzyme DNA photolyase. He will be returning to FIU during the summer of 1998.

Dr. Martin Quirke continues to be an active force in the field of porphyrin chemistry in which he has recently accepted the offer to contribute a chapter on Mass Spectrometric Analysis of Porphyrins to a newly planned 12 volume work, The Porphyrins, which will be published in 1999. On other fronts he recently published work on techniques suitable for the identification of natural products in complex mixtures at the atomic level using ferrocene derivatizing agents coupled with electrospray mass spectrometry.

Dr. Jeffrey Joens published a paper on the assignment of the vibrational structure of the spectrum of SO₂, Chem. Phys. Lett. 1996, **261**, 659. This paper represents a significant step forward in the fundamental understanding of the triplet state of SO₂. He has also recently published a paper on the benzene-oxygen molecular complex, J. Phys. Chem. A, 1997, **101**, 2607.

Dr. Gary Hoffman will spend next year on sabbatical at Los Alamos National Laboratory. He plans to work on a theoretical approach to the understanding of strain and fracture in polymeric materials. This last year Dr. Hoffman published two theoretical papers; "An Integral for Second Order Multiple Scattering Perturbation Theory", J. Comp. Phys. **130**, 129 (1997). and "The Rotational Partition Function for Linear Molecules," J. Math. Chem. **21**, 115 (1997).

Dr. John Landrum's group is actively studying the metabolism of the carotenoids lutein and zeaxanthin and published three papers in 1997 demonstrating for the first time that lutein up-take by the human retina can be altered by dietary supplements: Exp. Eye Res. (1997) **65**, 57 Dr. Landrum just returned from a trip to

Glasgow, Scotland where he presented results on this research to the 2nd International Symposium on Age-Related Macular Degeneration to Hoffman-La Roche in Basel, Switzerland where he was invited to participate in a Symposium on the Macular Pigment. This spring Dr. Landrum has been invited to be a speaker at the 3rd Gordon Conference on Carotenoids held in Ventura, CA.

Dr. David Chatfield Dr. David Chatfield is developing computational methods to complement NMR in characterizing the thermodynamics of ligand binding to proteins. He is currently studying staphylococcal nuclease, a protein responsible for DNA and RNA cleavage and a prototype for studying protein dynamics. Dr. Chatfield has a paper in press in the Journal of the American Chemical Society on this topic, and he has been invited to present new results at the ACS Conference in Las Vegas and the Sanibel Symposium held by UF's Quantum Theory Project. Dr. Chatfield also continues to work on theoretical methods for determining enzyme mechanisms, in particular in applying computational methods that combine quantum and molecular mechanics to the catalytic mechanism of HIV-1 protease. This research is described in an invited paper: Theochem (1998) 423, 79.

Dr. David Becker and his research group continue to explore the diagnostic and therapeutic potential of azulenyl nitrones, a newly synthesized class of molecules with the capacity to detect and counter the harmful effects of free radicals. FIU and Becker have a patent pending on the new technology, which has generated substantial interest in the private sector at biotech companies and cosmetics companies. Recent collaborative work with Upjohn and Pharmacia and Harvard Medical School/Massachusetts General Hospital have established the antioxidant and neuroprotective activity of azulenyl nitrones in animal models of stroke and Parkinson's disease. During the summer of 1997, Dr. Becker took part in a European tour consisting of five invited lectures in Switzerland, Germany and Italy (Lausanne, Zurich, Geneva, Heidelberg and Milan).

Dr. Rudolf Jaffé accepted the position of Associate Director of Research for the Southeast Environmental Research Program during this last year making him busier than ever. He has graduated four masters students in the past year and has published five papers in the field of organic geochemistry.

Dr. Leonard S. Keller stepped down as department chair after thirteen years of service in that position. He has assumed responsibility for coordinating and overseeing the Organic Chemistry Laboratories. He has begun working again in his research laboratory on a collaborative project with Professor Robert Gawley of the University of Miami

Zaida Morales is the Head PreProfessional Advisor for the College of Arts and Sciences, the Undergraduate Program Coordinator for the Department of Chemistry and still teaches Quantitative Analysis Laboratory and Lecture. Professor Morales is very active in the American Chemical Society at the National level.

Dr. Milagros Delgado has completely redesigned the introductory laboratories incorporating computers heavily in the laboratory exercises. She is responsible for overseeing the entire chemistry operation of the North Miami Campus. Dr. Delgado continues to be very active in the American Chemical Society at the National Level

Dr. Ramón López de la Vega after stepping down as chairman, has taken over Graduate Program coordination. This promises to be a real challenge since a new Ph.D. program is being implemented.

On a Personal Note

The department is pleased to announce that **Dr. Yiwei Deng** gave birth to her second child, a girl, Linda, in June of 1996. **Ms. Zaida Morales-Martinez** is proud to announce that she has just become a grandmother – (twice in one month!). Her daughter Olga and her husband Jayson are the parents of a baby girl, Danielle Cecilia born Dec. 9, 1997. Her son Luis and his wife, Cynthia also became parents on Nov. 20 with the birth of their son, Derek Christian. Congratulations are also in order for **Dr. Hong Xie Wang** and husband Dr. George Wang on the birth of their second child, Daniel Danzian Wang.

Student News.....

The Chemistry Club

Our Student Affiliate Chapter of the American Chemical Society are a major source of pride to the department. They support a number of events during the year including the Annual Student Awards Banquet, the Halloween Costume Party, and the Thanksgiving Luncheon. They provide free tutoring for lower division chemistry students several times each week. This has made a real difference for many of these students! The club was recognized as "Outstanding" for the fourth year running by the American Chemical Society. This is a rare accomplishment among ACS-SA chapters. In April of 1997 the Chemistry Club and the local section of the ACS hosted the spring banquet which featured Nobel Laureate Roald Hoffman as speaker and the guest of honor. This is a truly impressive feat, and the advisors, Dr. Kevin O'Shea and Dr. Ken Furton, and most importantly the students, are to be congratulated for these very significant accomplishments.



Art Herriott (Dean of the College of Arts and Sciences at FIU) and Nobel Laureate Roald Hoffman at the 1997 ACS - SA Student Awards Banquet.

Recognizing Academic Achievement...

Each year the College of Arts and Sciences Presents Awards Recognizing Excellence.

Outstanding academic achievement by a student completing the Bachelor of Science in Chemistry

Ailette Aguila
Azra Medjedovic
Melita Morton

Outstanding academic achievement by a student completing the Bachelor of Arts in Chemistry

Kumarie Latchman

Outstanding academic achievement by a student completing the Master of Science in Chemistry

Anja S. Dilley
Ya-Li Hsu

College of Arts and Sciences Award for Outstanding Service to the Department

Lucy J. Benard

Each year the local Section of the American Chemical Society and the Chemistry Club also recognizes academic excellence.

Outstanding Academic Achievement by a Senior in the BS program

Ailette Aguila

Excellent Academic Achievement by a Senior in the BS program

Ivelitza Garcia
Azra Medjedovic
Melita Morton
Reina Natero
Silivio Restrepo

The Jesus P. Lopez Award

Lucy J. Benard

Outstanding Academic Achievement by a Senior in the BA program

Kumarie Latchman

Outstanding Academic Achievement in Freshman Chemistry

Kenneth Cohen-Sasson
Sheldon Himmelsbach



Main Library - University Park Campus

The new 8 story, \$40,000,000 library will be fully operational at the end of the fall semester. It is remarkable building serving as the centerpiece of the whole University Park Campus. Come in for a visit. For more information visit the web site

www.fiu.edu/~libraries

Alumni News.....

Editors Corner:

The prospect of getting out our newsletter makes me think of the students whom I have been so lucky to work with over the years since I first came to FIU. Wow! Eighteen years goes by fast! While I have heard from many off and on over the years many others have moved and become involved in the important business of life. I know I speak for the other faculty in saying that we are anxious to hear from as many people as possible. We know that you will enjoy hearing about you old college buddies and what they are doing. In keeping with the modern age please fax or email a line with information about yourself or the whereabouts of other FIU chemistry grads you have kept in touch with over the years. It is always a great pleasure to hear from you and we would like to invite you to drop by campus if you happen to be in the area.

- John Landrum
- Ramón López de la Vega

FIU chemistry students are making good in the real world and can be found all around the world. We have a list of some them and a little information about them below. Don't forget to tell us about your own goings on so we can share them with your former classmates.

Barbara Hampson-Keller BA '76 Barbara has recently passed the Florida Bar after completing a Law Degree at the University of Miami.

Olga Sheldon BA '81 Olga has been an adjunct instructor at FIU almost continuously since she graduated while simultaneously raising a family of four boys with her husband John (Physics, FIU). Last November John suffered a stroke but has returned to

teaching since the summer.

Nancy Mintz, BS '94 Nancy is working at Dade County Environmental Resource Management Labs. Her son David is attending Brown University where he is majoring in biology with the expectation of entering medical school

Dong Hui Cui, MS '92 (Landrum) Dong Hui is currently working at Merck in Pharmacology where he does extensive MS work to understand metabolism of pharmaceuticals produced by Merck.

Maria Aloya, BS '90; MS '93 (Winkle) Currently Maria is working as Laboratory Manager at Barry University.

Ethan Jolley, MS '93 (Furton) Ethan is currently working for Miami-Dade in the Water Treatment Laboratory.

Lian Luo, MS '93 (Quirke) – Lian is currently at the University of Florida

working towards a Ph.D. in chemistry.

Weili Wang, MS '93 (Landrum) – Weili is currently at Texas A&M working toward the Ph.D. in Molecular Biology.

Claudia Cardona, MS '94 (O'Shea) Claudia is currently working towards a Ph.D. in Chemistry at the University of Miami .

Ming Guang Han, MS' 95 (Landrum) Ming is living in New York City with her husband and two children.

Doraida Diaz, MS '97 (Jaffe) Doraida recently returned to us and is now working at the Southeast Environment Research Program here at FIU.

Graduate Program News...

In the spring of 1997, the Board of Regents of the State of Florida approved for initial implementation the Ph.D. program in Chemistry. The Ph.D. program was implemented in August of 1997 and emphasizes the current strengths of the department - Environmental and Biomedical Aspects of Chemistry. This is a very important step in the development of FIU as a major Research center.

The entrance requirements for this program are a Bachelor of Science in Chemistry with a Grade Point Average of 3.0/4.00 or above and greater than 1000 in the general section of the Graduate Record Examination. Foreign students must pass the Test of English as a foreign language with a score of 550 or more. Teaching Assistantships are available. The

program admitted its first students in the fall of 1997.

The Ph.D. program will complement the now well established Masters program. Both programs offer most classes in the evening in order to accommodate part-time students from local industry. If you would like more information please visit our website:

www.fiu.edu/orgs/chemistry

or email us:

lopezdel@fiu.edu

or phone us at

305-348-2606



Department of Chemistry
Florida International University
Miami, Florida 33199

Please Contact Us: Let us know what is new so we can incorporate it into our files.

*Alumni Relations-Chemistry
Department of Chemistry
Florida International University,*

International Forensic Research Institute

FIU has established a new multidisciplinary International Forensic Research Institute. The purpose of the institute is to advance forensic science through university, law enforcement, government lab and corporate partnerships. The Institute evolved from the long-standing criminalistics chemistry program in the FIU Chemistry Department and an interdisciplinary undergraduate Forensic Science Certificate Program. "We believe that the collaboration between academic faculty and practicing forensic scientists will be mutually beneficial toward the advancement of forensic science." said **Ken Furton**, the director of the Institute and chair of the FIU Chemistry Department. For further information visit the web site: www.fiu.edu/~ifri

Response Card:

Name _____ Degree/year _____

Address _____ Present Employer _____

_____ Phone No. _____

_____ Fax No. _____

Would you like to be included in future mailing lists? _____yes _____no

Are you planning to attend the Alumni - Faculty Soiree _____yes _____no

Please fax response to: John Landrum at 348-3772

You may also respond to landrumj@fiu.edu