THE FILTERPAPE R

November 2003 **All the News that's Filtered to Print**

November 10th Dinner Meeting

Taking it to the Streets: Chemistry in Service of the Community

Prof. Dennis Jacobs
Monday, November 10th , 2003

Dinner (Cost: $20.00)	Noble Family Dining Hall St. Mary's College
Menu:	Asiago Spinach Stuffed Chicken, Red Bliss Garlic Mashed Potatoes, Carrot Cake
Social Time:	5:30 p.m.
Dinner:	6:00 p.m.
Seminar:	7:00 p.m. Room 105 Science Hall

Abstract:
Notre Dame students are partnering with the City of South Bend, Memorial Hospital, the Robinson Community Learning Center and Greentree Environmental Inc. to help identify neighborhood homes that have unsafe levels of lead contamination. Lead is particularly dangerous to children, because it can induce damage to the brain and nervous system, behavior and learning problems, slowed growth, hearing problems, and headaches. While lead poisoning crosses all socioeconomic, geographic, and racial boundaries, the burden of this disease falls disproportionately on low-income families and families of color. In the U.S., children from poor families are eight times more likely to be poisoned than those from higher income families. Approximately 22% of African-American children living in pre-1946 housing are lead poisoned, compared with 5.6% of non-Hispanic white children and 13% of Mexican-American children living in older homes. At the University of Notre Dame, students can elect to enroll in "Chemistry in Service of the Community" as a companion course to Analytical Chemistry Lab. This unique community-based learning experience teaches students sample-collection techniques and instrumental analysis within an applied context. At the same time, students witness first-hand how lead contamination affects individuals, families, communities, and society. Students work with community partners to help educate local homeowners, landlords, and residents of the health risks associated with lead contamination and of low-cost ways to create a safer home environment.

Biography:
Dennis C. Jacobs earned B.S. degrees in Chemistry and Physics from the University of California at Irvine and a Ph.D. in Physical Chemistry from Stanford University. Shortly after joining the faculty at Notre Dame in 1988, he was named a Sloan research fellow. Professor Jacobs' research interests focus on understanding the dynamics of reactions at the gas/surface interface, especially under conditions where the reactants are highly energetic. In 1999-2000, Professor Jacobs was selected as a Carnegie Scholar. Through the guidance and support of the Carnegie Foundation for the Advancement of Teaching, Professor Jacobs investigated the impact that cooperative learning strategies had on the retention and success of first-year students in his redesigned General Chemistry course. Professors Jacobs is the cofounder of TextRev (www.textrev.com), a national web-based survey tool to help instructors learn how their students use and value textbook resources. In 2002, Jacobs was named the "U.S. Professor of the Year for Doctoral and Research Universities" by the Council for the Advancement and Support of Education (CASE) and the Carnegie Foundation for the Advancement of Teaching.

RSVP: Deb McCarthy by 4 pm, November 7th via email (dmccarth@saintmarys.edu) preferably. Or leave a voice mail message 284 4660.
To reach the Dining Hall, park in the Science Hall Parking (entrance Douglas at Inn at Saint Mary's road) and after parking walk down the road along Science Hall and behind the Library. Proceed across the grass and walk behind the construction where the old Dining Hall once existed. Walk around the far end of the New Dining Hall to the front patio. A door will be open for you to enter into the West Dining Room. This route and the entrance will be clearly marked. Alternately you could park by the Dining Hall but then you would have to find you way back there in the dark from Science Hall.

Inside This Issue

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Minutes from the September Executive Meeting

St. Joseph Valley Section of the ACS,
Executive Committee Meeting
September 22, 2003
Saint Mary's College

Present: Deb McCarthy, Phil Bays, Dan Brown, Chris Dunlap, Rachelle Yung, Dave Pearman, Doug McMillen

Secretary: The August 9th Minutes were approved.

Treasurer: Report will be emailed to the committee

Next Filter Paper deadline will be announced as plans for the next meeting are finalized

Next Dinner meeting: Peter J. Reilly - Working in the Tropics on Food Problems– Wed October 22, 2003 at a site to be determined

Business:

There is still a need for a nomination for Chair-Elect. We will continue to seek nominees

National Chemistry Week preparations: Dave reported that we have three sites, Barnes and Noble in St. Joseph County (October 11), the Plymouth public library in Marshall County (Nov 1) and at the Elkhart Public Library in Elkhart County on November 25th. Materials have been ordered and will be distributed when received.

Doug brought up a survey request from the Local Section Activity office about local section publicity. The survey had already been completed by Chris.

The meeting was adjourned

Respectfully Submitted,
Chris Dunlap

SJV-ASC Executive Office Nominations

Chair-elect	Chris Dunlap
Secretary	Bill Feighery
Treasurer	Pat Boetcher
Member-at-Large	Rachelle Yung

Joint Bayer Science Forum -ACS November 24th Dinner Meeting

Discovery of a Novel Target for Potential Cancer Therapy

Dr. John Casper
Monday, November 24th, 2003

Dinner :	Christian Creek Country Club -116 W Bristol Street, Elkhart
Menu:	Buffet Style
Social Time:	5:30 p.m. (Cash Bar)
Seminar:	6:00 p.m.
Dinner:	7:00 p.m.

Abstract:

In order for cells to divide they must first replicate their DNA. An exciting target for potential cancer therapy is protein that regulates replication initiation at DNA replication origins. Our laboratory identified the human c-myc origin of replication. Characterization of the c-myc origin has led to the discovery of a previously undescribed protein. The protein was identified using the yeast one-hybrid assay. The protein binds to the DNA unwinding element that is an important control element in the c-myc origin. The protein was named the DNA unwinding element-binding protein (DUE-B). The DUE-B protein dimerizes in both *Xenopus* and HeLa cell extracts. DUE-B is a constitutively nuclear ATPase that is released from nuclei upon micrococcal nuclease digestion. The DUE-B protein specifically binds the c-myc origin fragment *in vitro.* The phosphorylation of DUE-B is increased in cells arrested in S phase. Phosphorylation of DUE-B is inhibited by the CDK inhibitor purvalanol and increased by the PP2a inhibitor okadaic acid. Exogenously added insect expressed human DUE-B protein inhibits sperm chromatin replication after the formation of pre-replicative complexes but before the loading of RPA in *Xenopus* extracts. SiRNA decreased cellular proliferation by delaying entry into S phase and inducing cell death. Therefore, the DUE-B protein is a novel nuclear ATPase that becomes phosphorylated in S phase, binds to a human replicator and is important for S phase progression.

Biography:

John graduated from the University of Illinois in 1989 with a B.S. in Biochemistry. He then came to work at Miles Laboratories/Bayer Corporation as a research scientist from 1989-1998. He worked on a variety of projects and was also known for his intolerance of shoes and his tolerance of the cold as he was often seen walking barefoot between buildings in the winter time. While at Miles/Bayer, John was involved in the Miles/Bayer Science Forum and was an avid soccer player. He then left Bayer in 1998 to pursue his PhD in Biomedical Sciences under Michael Leffak from the Department of Biochemistry and Molecular Biology at Wright State University in Dayton, Ohio. He graduated from Wright State University in 2003 and is currently a post-doctoral fellow studying the biology of Adeno Associated Virus (AAV) for gene therapy applications under James Trempe at the Medical College of Ohio in Toledo, Ohio.

RSVP: Andy Edelbrock by 4 pm, November 21st via email (Andy.Edelbrock.b@Bayer.com) preferably. Or leave a voice mail message 262-6967.

Andy Edelbrock
Bayer Corporation
Elkhart, IN 46514

DON'T FORGET **RSVP Friday November 7th for the Nov. 10th Dinner Meeting**
RSVP Friday November 21st for the Nov. 24th Dinner Meeting

If you are receiving a paper copy of the filter paper send your Name and E-mail address to Andy.Edelbrock.b@bayer.com

Dr. Julie Peller – September Dinner Meeting Recap

Hydroxyl Radical Mediated Transformation of the Herbicide 2,4 Dichlorohenoxyacetic acid and Related compounds.

Dr. Peller introduced the audience to the herbicide 2,4-D and the problems that its wide use poses. These include drinking water contamination. She then discussed the variety of methods (advanced Oxidation Technologies) by which drinking water is treated to remove organic molecules, including 2,4-D. By examining the fate of 2,4-D when subject to these different processes, it was hoped that a better understanding of the process could be determined. The first method discussed was Radiolysis, by which gamma rays are used to produce hydroxyl radicals, which will oxidize the organic carbon in the sample. This method did not remove all of the organic carbon, even after several hours of treatment. Two other methods were examined: Sonolysis and Photocatalysis. Sonolysis treats the sample with sound to form cavitation bubbles, which on collapse release energy. Photocatalysis is a process by which hydroxyl radicals are formed by treatment of the sample with light in the presence of a TiO_2 catalyst. The sonolysis broke the 2,4-D down, but did not change the Total organic carbon. The photocatlysis did not break down the 2,4-D, but did reduce total organic carbon in other forms. Thus these two methods were complementary and when combined where good at reducing all species of interest.