Physics Department News

WESTERN MICHIGAN UNIVERSITY

COLLEGE OF ARTS & SCIENCES

Volume 3, Issue 1 May 2004

Inside this Issue

A note from the Editor:

Welcome to our "bi-annual" newsletter. Actually, this is the first time that we have succeeded in making the newsletter a two-times-per-year happening! Hopefully, we will be able to continue this schedule in order to keep you more up to date on recent happenings in the department.

As noted in the previous issue, we plan to put each issue of the newsletter on the department website (www.wmich.edu/physics), where you will also be able to find more detailed information concerning our programs, our faculty, and the current research activities of the faculty. This electronic access has not yet come to pass, but we are working on it. In the future, there will be the opportunity to receive the newsletter by electronic means, if you prefer, or you will be able to access it directly at our website. Hopefully, we will be able to implement these changes by the time that the next issue is ready to go to press.

As always, if you have any feedback concerning the newsletter, e.g., in terms of format, other features you would like to see, or some information about yourself that you would like us to print, please contact me directly. You can contact me by email (john.tanis@wmich.edu), telephone (269-387-4940), or by fax (269-387-4939). Alternatively, you can fill out the "Feedback/Update Reply Form" that will be included at the back of each issue of the newsletter. We would love to hear from you.

I hope you enjoy this latest issue of the newsletter!

John A. Tanis, Editor
john.tanis@wmich.edu

From the Chair:

These are difficult times here at Western. I hate to start out on a low note, but as chair, dealing with the consequences of our current budget situation takes up a lot of my time and attention, so a few words may be in order.

The amount of revenue that WMU receives from the State of Michigan has decreased substantially over the past two years. This will not be news to many of you, and I won't bore you with numbers, but there is no question that we are now facing some tough choices. In a time when costs continue to rise, we have also reached the point where raising more revenue from tuition seems politically and practically impossible. Therefore, cuts must be made. The easy and obvious cuts were made long ago, and one-time sources of help have mostly been exhausted. The budget situation at the state level shows no sign of improving any time soon, so we must now make longer-term, fundamental adjustments.

Upper administration has tried very hard to shield our core instructional mission from being curtailed. So far, there has not been much direct impact on what we do in the Physics department. But that also means budget cuts have fallen disproportionately on other parts of the University, areas we think of as "support" units. This has already affected custodial and landscape services, which do eventually affect us. Capital projects are delayed, and maintenance is deferred. So if you come to visit, and the campus doesn't look quite so nice, that may be the reason.

More directly, there has been a lot of pressure on financial support for graduate students. Our stipends and tuition policies were not very competitive before, and now it is becoming difficult to even maintain that level. Part-time and term faculty, who have usually supplemented our instruction, are now being cut, meaning we will have to offer fewer courses or work a little harder (probably both). More staff positions university-wide will soon be cut (some were already laid off last summer) and there has been a hiring freeze for most of the year.

The university also felt it had to offer a retirement incentive in order to reduce personnel costs, so two of our professors will be retiring at the end of this calendar year, Bob Shamu and Bob Poel. It is interesting to note that in the late 1960's, Poel took some classes taught by Shamu, when the former was a graduate student here, and now they are retiring at the same time!

Many of you have already donated to our department, and we appreciate it very much. If you haven't yet, or could add to your donation, it might help us continue some important programs which are not direct instruction, such as our colloquium series, research and travel support for faculty who don't have external funding, student scholarships and awards, or even equipment. As always, you are free to designate your gifts to any specific purpose you choose. Contact the development office for more details.

Paul V. Pancella, Chair
paul.pancella@wmich.edu

What's New at the University

Dr. **Thomas Kent** has been named the new dean of the College of Arts and Sciences, replacing Leonard Ginsberg who has been the interim

dean since Elise Jorgens left WMU last July to become provost at the College of Charleston. Dr. Kent, who is currently dean of graduate studies at Utah State University, will begin his new duties at WMU on Aug. 1. Previously, he was chairperson of the Department of English at Iowa State University, where he also held faculty appointments in English since 1984. He also taught at Miami University of Ohio and served for one year as a Fulbright Professor at the University of Tampere in Finland. Kent earned his bachelor's degree at the University of Michigan in 1969 and a doctoral degree from Purdue University in 1980.

The **West District Development Project** is currently underway at WMU at the W. Michigan Ave. entrance to WMU. During the present phase of the project pedestrian walkways and roads, including WMU's first roundabout, are being constructed in the area west of Haenicke Hall to Howard St., as well as new parking lots near Faunce Student Services Building. In the future, new buildings for admissions, a welcome center and the WMU Bookstore are planned as part of the project, although construction on these buildings has not yet been scheduled. When finished, the project will provide a new, and presumably more attractive, entrance to the campus. And it will be near to the physics department!

Faculty Highlights

Assistant Professor **Philip Kaldon**, a.k.a. "Dr. Phil", will be attending the prestigious 2004 Clarion Science Fiction and Fantasy Writers' Workshop this summer at Michigan State University from June 6 through July 16, 2004. The Clarion Science Fiction and Fantasy Writing Workshop is the best known and most highly regarded science fiction writing workshop in the country. Now in its thirty-seventh year, the Clarion Workshop is discussed frequently in science fiction publications and has national and international visibility. Clarion was founded in 1968 at Clarion State College (now Clarion University) in Pennsylvania.

Dr. Phil has been using science fiction novels and movies for many years in science literacy activities in all his classes. For the past two years, he has been actively submitting short stories to various science fiction markets and was accepted to Clarion on his first try. Over one third of graduates have published since leaving Clarion.

For more information on the Clarion workshop:
http://www.msu.edu/~clarion/

For more information on Phil Kaldon's science literacy reading assignments:
http://homepages.wmich.edu/~kaldon/science-literacy-list.htm

During the fall semester, Professor **Nora Berrah** mentored a senior physics student from the Kalamazoo Area Mathematics and Science Center (KAMSC). The student, Ms. Liz Otto, participated in regular group meetings and also used the accelerator ion source, along with other students, to study the production of negative ions that will be used as targets for collisions with photons in the research of Dr. Berrah at the Advanced Light Source in Berkeley. This participation by Ms. Otto continues a nearly 15-year tradition of such mentorships by KAMSC students who have worked under the guidance of several department faculty. Most of these students go on to continue their education in physics at some of the most prestigious colleges and universities in the country.

Staff Highlights

Two new postdoctoral research associates have been hired by **Nora Berrah** to assist with her research at the Advanced Light Source in Berkeley. One of the postdocs, **Rene Bilodeau**, who received his Ph.D. in 2001 from McMaster University, will investigate the detachment of two electrons from negative ions in interactions with a single photon. Dr. Bilodeau previously worked with Dr. Berrah for about two years under a Canadian government research fellowship.

Dr. Rene Bilodeau

The other postdoctoral associate, **Mark Perri**, started his appointment just on May 1 and he will study molecular and cluster dynamics resulting from interactions with photons. Dr. Perri is a 2004 Ph.D. graduate of the University of California, Berkeley.

Dr. Mark Perri

We welcome both of these scientists to our research staff!

Faculty Research

The Department of Energy and the National Science Foundation are funding the construction of a facility

at the Advanced Photon Source (APS) at Argonne National Laboratory (near Chicago) for inelastic x-ray scattering. The Advanced Photon Source is a storage ring about ¾ of a mile in circumference that produces high brilliance x rays. Professor **Clement Burns** has received a five year $5,000,000 grant from the Department of Energy for this effort, and is in charge of setting up a spectrometer for studying electronic excitations in condensed matter systems. The spectrometer will be used for research in materials science, condensed matter physics, chemical physics, geophysics, and biophysics.

In medical diagnostics, x-rays are sent through the body, and a film records whether the x-rays make it through the body or not. If there is something in the way, like a bone or a tooth, the x-rays will be absorbed, and this part of the photo will look white. However, more information is available from the scattered x-rays, which have a different momentum and energy after being scattered at some angle from an object. X-rays coming out at different angles provide information at the atomic level. In particular, they allow us to determine where the atoms are located with respect to each other. If the x-rays have a different energy, we can learn something about the energies of the excited states of atoms and electrons in the material.

Presently, a series of lead-lined hutches have been constructed to house the instruments and shield the outside from the high level of radioactivity. The overall design for the spectrometer has been finished; it will allow for eight axes of rotation, ultra-high pressure samples, low and high temperature environments, and high magnetic fields. Web based cameras and remote operation software will allow the operation of the entire beamline remotely, for instance from WMU. A postdoctoral research associate will be hired through WMU in the next several months, and the APS will be hiring a full time scientist to work on the beamline later this year. Work is progressing as scheduled. We should have x-ray beam in the hutches later this year, and expect the beamline to start operations next year.

PhysTEC

The department has now completed the third year of its six-year commitment to the PhysTEC project that is funded by the National Science Foundation and administered by the American Physical Society. PhysTEC, which stands for Physics Teacher Education Coalition, is a consortium of seven universities around the nation dedicated to improving the training of future physics teachers by giving physics teachers the tools they need to teach science constructively and to enhance their sense of professionalism.

As a coalition member, Western has initiated a number of changes in its introductory courses and laboratories using the results of scientific studies on how students learn. Innovations carried out by Drs. Berrah, Henderson, Paulius, Rosenthal, and Schuster include a concentration on small group activities, interactive lectures and lecture demonstrations, and imparting problem solving skills modeled on how experts confront problems. In addition, an entirely new set of "discovery based" introductory laboratories has been implemented for the introductory calculus-based course, with a second revised lab manual due this fall. Dr. Schuster has carried out a complete redevelopment of the SCI 180 course for pre-service elementary and middle school teachers. All of the work directed at secondary education majors has been tested by standardized conceptual exams in physics and these show that students taking our revised courses perform above the national average. The results of our work in physics education were reported in six different talks to professional societies, including the American Association of Physics Teachers, National Science Teachers Association, and an invited talk to the American Physical Society.

A key element of PhysTEC is the presence on campus of a Teacher-in-Residence (TIR), a master high school science teacher, who works with physics faculty on course reform, with education college faculty on teacher preparation, and with beginning teachers as a mentor/advisor. Our TIR for '03-'04 was Eugene Wood of Parchment High School, who has been particularly active in working with pre-service science teachers and with mentoring. Dale Freeland of Portage Central, our previous TIR, has remained active in the project through mentoring activities.

Alumni News

We have learned that **J. Thomas Dickinson**, a 1963 B.S. physics graduate of WMU, has been promoted to the position of Regents Professor at Washington State University. This appointment is made for "exemplifying the highest level of achievement among faculty". In the fall of 2003, Prof. Dickinson was selected by WMU to receive its Distinguished Alumni Award, an account of which can be found in the December 2003 issue of this newsletter.

Congratulations again, Tom!

New Grants

Nora Berrah, in collaboration with F. Wuilleumier (France), N. Kabachnik (Russia), P. Lambropoulos (Greece), and M. Meyer (France), NATO Collaborative Grants Programme, for project entitled "Dynamic Investigations in Two-Photon Photoionization of Metal Vapor Atoms". Awarded $15,000.

Alan Wuosmaa, U.S. Department of Energy, for project entitled "Study of Exotic Light Nuclei with Few-nucleon Transfer Reactions". Awarded $249,000 for the period from June 15, 2003 – June 14, 2006.

Student News

Ayman Said was selected to receive one of the annual All-University Graduate Research and Creative Scholar Awards. While each department on campus can nominate one graduate student for this award, only a handful is chosen for the all-university honor. The designation for the award appears on the student's official academic transcripts and the recipient is invited to make a presentation about their research and scholarly activities at a recognition ceremony. Ayman recently successfully defended his Ph.D. dissertation in condensed matter physics, working under the supervision of Clem Burns. Most of his experimental work was done at the Advanced Photon Source at Argonne National Laboratory, where he used inelastic x-ray scattering to determine the properties of so-called expanded metal compounds. This is the second such all-university award presented to a physics Ph.D. student in the past three years. Way to go Ayman!

Michelle Tuel-Benckendorf was selected as the department recipient of one of the university's annual Graduate Student Teaching Effectiveness Awards. This award is presented to the student in each department who exemplified particular skill and effectiveness in teaching during the past year. In addition to her teaching responsibilities, Michelle, who is pursuing a master's degree in physics, made substantial contributions to major revisions of the calculus-based introductory courses (PHYS 205 and 207) and the accompanying laboratories as part of the department's involvement in the PhysTEC project (see page 4-PhysTEC). Congratulations Michelle!

David P. Hoogerheide was named the 2004 Presidential Scholar in Physics. Students are nominated for this award by faculty members, and "are selected on the basis of their general academic excellence, academic and/or artistic excellence in their major and intellectual and/or artistic promise". Each scholar was presented with a certificate by WMU President Judith Bailey at the annual Presidential Scholars Convocation held in March. David majored in both chemistry and physics and he was the 2003 Presidential Scholar in chemistry as well. In the fall, David plans to attend graduate school where he will pursue a Ph.D. in experimental condensed matter physics. Nice work David!

Annual Student Awards

Spring 2004

Charles Wilcox Memorial Award:
David Hoogerheide

George Bradley Physics Award:
Ayman Said

George and Jean Bradley Fellowship:
Samah Abdul-All

Jacob Dewitt Outstanding Teaching Award:
Nalaka Kodituwakku

Leo Parpart Scholarship:
Huaizhen Zhang

Nathan Nichols Scholarships:
David Hoogerheide
Adam Lincoln
Diane Strohschein

Paul Rood Scholarship:
John G. Heredia

Presidential Scholar:
David Hoogerheide

Book Awards

Fall 2003

102	Daniel Hartman
	Brent Kolhoff
104	Charles Palosaari
106	Anne Flynn
	Robert McNabb
107	Amanda Bolthouse
	Meghan Burlager
	Steve Vaught
113	Jamie Klein
	Christopher Sebastian
115	Lauren Sheill
205	Nicholas Horsmon
	Lacombe Travis
207	William Musinski
	Brendon Thiede
309	Aaron Rimpel

Spring 2004

100	Eric Gauthier
104	Lauren Rea
106	Kevin Kahmark
107	Sarah Ann Korth
113	Amanda Bellino
	Aaron Gornowicz
	Heather Velagalety
115	Sean Calvert
205	Everett Bolduc
	Steven Eick
	Alan Katz
	Brendon Thiede
207	Corey Case
	Diane Strohschein
309	Brian Stroh

Recent Graduates

B.S.

December 2003

Brian Beran

April 2004

David Hoogerheide
Adam Lincoln
Lindsey McConney

Ph.D.

December 2003

Ovidiu Toader

April 2004

Sophie Canton-Rogan

Department Roster

Faculty

Nora Berrah
Clement Burns
Sung Chung
Thomas Gorczyca
Dean Halderson
Gerald Hardie (Assistant Chair)
Charles Henderson
Philip Kaldon
Emanuel Kamber
Kirk Korista
Arthur McGurn
Paul Pancella (Chair)
Lisa Paulius
Bob Poel
Alvin Rosenthal
David Schuster
Robert Shamu
John Tanis
Alan Wuosmaa
Aletta Zietsman-Thomas

Emeriti

Eugene Bernstein
Stanley Derby (Adjunct faculty)
Dean Kaul
Michitoshi Soga
James Zietlow

Staff

Kerry Cochran
Steve Ferguson
Benjamin Gaudio
Allan Kern
Lori Krum
Bob Scherzer
Rick Welch

Post-doctoral Research Associates

René Bilodeau

Mark Perri

PhysTEC

Eugene Wood

Graduate Students

Abdul-All, Samah (Jordan)
Abu-Haija, Osama (Jordan)
Al-Faify, Salem (Saudi Arabia)
Al Shehri, Mohammed Ali (Saudi Arabia)
Baran, Jamie (Michigan)
Danila, Bogdan (Romania)
Dumitriu, Ileana (Romania)
Feng, Ximao (China)
Ghannam, Talal (Syria)
Hasoglu, Fatih (Turkey)
Hossain, Sabbir (Bangladesh)
Kodituwakku, Nalaka (Sri Lanka)
Olmez, Gokmen (Turkey)
Price, Rod (Michigan)
Said, Ayman (Jordan)
Tuel-Benckendorf, Michelle (Oregon)
Undreiu, Lucian (Romania)
Vilayurganapathy, Subramanian (India)
Vyas, Anjali (India)
Wang, Lihua (China)
Wang, Liming (China)
Wang, Xue (China)
Zhang, Huaizhen (China)

Feedback/Update reply form

Please use this form to update our mailing list, and/or to let us know what you have been doing, and what you would like to see in future newsletters. Fill out any portion of the form below and return to: **Newsletter Editor, Physics Department, 1120 Everett Tower, Kalamazoo, MI 49008-5252**

Name _____

first middle last

Home address _____

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city state zip

Home phone _____ Email _____

Employer _____ Job title _____

Work address _____

If alumni, degree and year: _____

Tell us more about yourself, and/or what you would like to see in future newsletters:

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