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# Physics Department News



WESTERN MICHIGAN UNIVERSITY

COLLEGE OF ARTS & SCIENCES

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## Editor's Note:

Welcome to the December 2006 issue of the physics department newsletter, the third consecutive edition of this "biannual" newsletter! Although it is our intention to have two newsletters each year, one in the late spring and one in the late fall, this hasn't always happened for various reasons. But, with three consecutive issues we are making progress!

As noted previously, each new issue of the newsletter, as well as all back issues from February 2003, are posted on the department's website: (<http://tesla.physics.wmich.edu>).

Perhaps we have already reminded you one too many times, but we note again that if you prefer not to receive future newsletters by postal mail, please drop us a note (my email address is below) and we will take you off the list of persons to whom a paper copy is sent. We could also send you an electronic copy (as a PDF file) of the newsletter if you prefer that means.

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](mailto:john.tanis@wmich.edu)), telephone (269-387-4960), or fax (269-387-4939). Alternatively, you can fill out the "Feedback/Update Reply Form" that is included at the end of each issue of the newsletter. We would very much like to hear from you.

Finally, a big big thank you to Kerry Cochran for her help in preparing each issue of the newsletter. Without her help, it would likely never see the light of day. Thanks Kerry!!!

Enjoy this latest issue of the newsletter!

John A. Tanis, Editor  
[john.tanis@wmich.edu](mailto:john.tanis@wmich.edu)

## From the Chair:



*Paul V. Pancella, Chair*

Greetings, friends, and best wishes for the new year. I have tabulated my grades for the Fall semester, and now I can share some news and thoughts with you from the chair's point of view.

As an administrator, WMU's declining enrollment gets a lot of my attention these days. Most of you probably know that the continuing loss of a few percent in the total number of students each year was a factor in the demise of president Judith Bailey earlier this year. How is this affecting the Physics Department?

Well, since we have a quantitative science bent, one of the first things we note is that the enrollment decline has not been evenly distributed among our seven colleges. Our college, Arts & Sciences, has actually held very steady over the last five years, while university-wide the enrollment has decreased significantly. Nor have we seen any significant decline in the number of physics majors or minors, or the total student credit hours we teach. Nevertheless, budgets are being cut all across academic affairs.

Therefore, it is clearly in our interest to do what we can to increase enrollment. There are always some things we can do better, of course, and we have the capacity to serve more physics majors and minors, so we are looking for ways to improve our recruiting, especially of future secondary science teachers. This has been identified as a national need,

and it is an area where WMU has been strong traditionally. But as a department, we can probably have a bigger impact by focusing on retention (or to put it negatively, trying to improve some of our courses which usually have high rates of attrition) and/or our general education offerings, which reach a larger number of students. There is evidence that our efforts to reform our introductory classes is already improving the success rates of our students, so these reforms may spread to some of our other classes. In addition, our "How Things Work" and other general education courses have become very popular, and should have a positive effect on the science literacy of the average student. Will that translate into better retention or higher enrollment overall? We'll have to wait and see.

University-wide, retention between the first and second year is definitely on the low side compared to similar institutions. WMU has instituted a First Year Experience program with the capacity to serve over 1000 of the students who entered this Fall. The idea is to put these students in small (<20) cohorts to give them a sense of belonging at the same time that we pay special attention to providing them the information and skills essential to making the transition to succeed at the university. I taught one of these FYE seminar sections this semester, and it was a very interesting experience. I believe at least some of the desired goals were met, but again, we have to wait until next year to see if retention improves as a result.

Please, enjoy the rest of this newsletter, and thank you for your interest and support of WMU Physics. As always, we thank the editor and staff who have put this together. We will be happy to hear from you if you have suggestions for future newsletters.

*Paul V. Pancella*  
*Chair*

[paul.pancella@wmich.edu](mailto:paul.pancella@wmich.edu)

## What's New at the University

In case you haven't heard, former president Dr. **Diether Haenicke** was appointed Interim President in late August for one year to succeed Dr. **Judith Bailey**. Previously, Dr. Haenicke served as president of WMU from 1985 to 1998. A nationwide search is presently underway to find a president to take over at the beginning of the 2007-08 academic year. A presidential search advisory committee consisting of administrators, faculty, staff, and students, has been formed and our own **Nora Berrah** was selected to serve on this committee. Congratulations to Nora!

For those of you who haven't visited WMU in a while, the campus continues to change. In January 2007 the new chemistry building will open for classes. This structure is located just to the west of Waldo Library and just north of Knauss Hall. This facility will give the chemistry department its much needed modern facilities, replacing the very outdated McCracken Hall. The entire area around the new building is being landscaped and will make for a very attractive campus setting when finished.

More information concerning the university can be found at (<http://www.wmich.edu>).

## Faculty Highlights

In July, Dr. **Asghar Kayani** joined the department as our new accelerator physicist and newest faculty member, following the retirement of **Steve Ferguson** last March. Dr. Kayani came to us from Montana State University in Bozeman where he worked as a postdoctoral associate and a research scientist since 2003. He received his Ph.D. in physics in 2003 from Ohio University in Athens after arriving there in 1998 from his native Pakistan, where he did his undergraduate and master's work.



*Dr. Asghar Kayani*

Asghar is extremely well suited to direct the operations and activities in the tandem Van de Graaff laboratory and he has already made some significant improvements in the short time he has been at WMU. At the same time, he is developing his own research program in applied physics. At Montana State he was involved in the development of materials for use in Solid Oxide Fuel Cells (SOFC) and he plans to continue some of this work at WMU in addition to conducting other materials science investigations. Asghar has submitted a proposal seeking major external funding for the purpose of replacing the present outdated accelerator ion sources. These new sources would greatly aid not only his applied research efforts but also the efforts of other faculty using the accelerator for basic studies in atomic and nuclear physics.

Notably, the department was able to hire Asghar at the rank of research faculty without teaching duties (his accelerator responsibilities are in lieu of teaching), thus representing an upgrade of this position to better reflect its true nature and the expectations of the person holding the position. In this way, we were able to add a new area of faculty research expertise to complement and broaden our current expertise in other areas and also to provide new opportunities for graduate student research.

## Staff Highlights

Postdoctoral research associate **Dragan Nikolic** gave an invited talk

at the 19<sup>th</sup> International Conference on the Application of Accelerators in Research and Industry held in Fort Worth, TX from August 20-25, 2006. Dragan is a theoretical atomic physicist working in the group of Tom Gorczyca, and he does calculations of dielectronic recombination in which electron capture is accompanied by simultaneous excitation of an atomic ion.

**Daniel Rolles**, a postdoc working in the group of Nora Berrah, received a one-year extension of his Feodor Lyman fellowship. These awards go to young German scientists who work under the supervision of previous Humboldt Fellowship recipients. (Nora received a Humboldt Fellowship to work at the Fritz-Haber-Institut in Berlin during 1992-93.)

## PhysTEC

The physics teacher preparation program has been very active and productive this past year at WMU. We produced 14 high school physics teachers from our Secondary Ed program last year (05-06 academic year), including 4 female physics teachers. Presently, 44 undergraduate students are in the physics teacher preparation pipeline, including 14 female students. This puts WMU among the top physics teacher education programs in the nation in terms of teacher production. Recent national reports such as "Rising Above the Gathering Storm" issued by the NAS brought attention to the national shortage of high school physics teachers, and WMU physics stands poised to meet the challenges issued by the report.

The NSF funded PhysTEC project here at WMU has been instrumental in this success by providing funding for our returning Teacher-in-Residence (TIR), **Drew Isola**, who oversees various recruitment and retention activities, along with physics department faculty, both on and off campus throughout the year.



Drew is on loan to the physics department for a second year from the Allegan Public School system where he taught physics and math at various levels. TIRs from previous years, **Bill Semrau**, **Dale Freeland**, and **Gene Wood**, have also been involved in these recruitment and retention activities.

Some of the activities that the TIRs and physics faculty members, **Al Rosenthal**, **Bob Poel**, **Charles Henderson**, and **Michael Famiano**, have been engaged in over the past year include:

1) Sponsoring evening physics workshop activities on campus throughout the year for area physics teachers, recent graduates, and undergrad SED students for the purpose of fostering a 'physics teaching community' and to share effective physics teaching strategies.

2) Attending and presenting papers at local, state, and national conferences such as the AAPT and the Michigan Section of the AAPT.

3) Bringing undergraduate SED students and recent physics graduates to professional meetings as a step in developing their professional career.

4) Organizing and participating in professional development workshops in area schools to help improve the quality of physics and physical science teaching at the K-12 level.

5) Mentoring novice and 'out of subject' K-12 teachers of physics and physical science by means of email communications, site visits, and classroom observation. This mentoring includes both WMU physics graduates and non-WMU graduates who contact the PhysTEC project seeking professional assistance and a source of physics teaching expertise.

Individuals interested in more detailed information about PhysTEC project activities should contact Drew at [drew.isola@wmich.edu](mailto:drew.isola@wmich.edu).

## International Week

WMU celebrated International Week from November 13-17, 2006. While many events were held campus wide, the physics department also organized its own special event promoted by graduate student **Mohammed Al-Amar**, the department's graduate student mentor. Graduate students and faculty were asked to bring a dish for sharing that was typical of something in their home country. We had a very good turnout for the event (people always like to eat!) and we had a wide range of interesting and very tasty dishes constituting a true international flavor that reflected the diversity and cultures of our students and faculty. There was plenty of food and nobody had an excuse for going away hungry! A big big thank you to Mohammed for organizing and promoting the event!

## ICPEAC Program Meeting – Sept. 2006



From September 30 – October 1, 2006 the physics department hosted the program planning meeting for the XXV<sup>th</sup> International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC) that will be held in Freiburg, Germany next July. We will host at WMU the XXVI<sup>th</sup> meeting in this series from July 22-28, 2009. This conference, which typically attracts 500 - 600 physicists from around the world, is the premier international conference on atomic collision physics, making it a very special event for us to host. As noted in the previous newsletter, **John Tanis** and **Nora Berrah** are the co-chairs for ICPEAC 2009, with

**Emanuel Kamber** and **Tom Gorczyca** serving as members of the local committee.

The program planning meeting held in Kalamazoo at the end of September was for the purpose of selecting the invited speakers for next summer's ICPEAC in Freiburg. About 35 members of the ICPEAC Executive and General Committees attended this planning meeting with sessions held in the Radisson Plaza Hotel downtown on Friday evening and Sunday morning, and an all day Saturday session at the Bernhard Center on campus. In addition to North America and Europe, attendees came from Argentina, Australia, and Japan. A reception was held for the attendees on Saturday evening in the Oaklands with hors d'oeuvres and fine Michigan wine. Everyone appeared to get enough to eat and to enjoy this relaxing informal setting!

## Student News

Graduate student **Ileana Dumitriu** has been awarded a fellowship for a second year (2006-07) at the Lawrence Berkeley Laboratory Advanced Light Source in California, where she is conducting her dissertation research. Ileana works under the supervision of Nora Berrah. Congratulations to Ileana!

Physics major **Will Johnson** has received a College of Arts and Sciences Undergraduate Research and Creative Activities award for Spring 2007. The award of \$500 will support the continuation of his research in the group of Nora Berrah. His research involves study of the dynamics associated with the ionization of clusters as well as the nature of these structures.

## Annual Student Awards

### Fall 2006

#### Nathan Nichols Scholarships:

Dan Garvin  
William Johnson

Jesse Snyder  
Kurtis Wickey

**Paul Rood Scholarship:**

Jack Winkelbauer

## Recent Graduates

### B.S.

#### June 2006

Michael Latimer  
Hussein Akl  
Christopher Michaels

#### December 2006

Joseph Bos  
Diane Lovett  
Jason Rietdyk

### M.A.

#### June 2006

Jeffery Wardwell

Kirk Korista  
Arthur McGurn  
Paul Pancella (Chair)  
Lisa Paulius  
Alvin Rosenthal  
David Schuster  
John Tanis  
Alan Wuosmaa

### Emeriti

Eugene Bernstein  
Stanley Derby  
Dean Kaul  
Robert Poel  
Robert Shamu  
Michitoshi Soga

### Staff

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

### Post-doctoral Research Associates

René Bilodeau  
Jun Fu  
Dragan Nikolic  
Zoran Pesic  
Daniel Rolles  
Ayman Said

### PhysTEC

Drew Isola

### Graduate Students

Abdel Naby, Shahin (Egypt)  
Abunima, Alaa (Qatar)

Adams, Dan (Michigan)  
Al-Amar, Mohammad (Jordan)  
Al-Faify, Salem (Saudi Arabia)  
Ayyad, Asma (Israel)  
Baran, Jamie (Michigan)  
Cassidy, David (Michigan)  
Cipri, Robert (Michigan)  
Das, Susanta (India)  
Dassanayake, Buddhika (Sri Lanka)  
Dumitriu, Ileana (Romania)  
Durren, Michael (Michigan)  
Elkafrawy, Tamer (Egypt)  
Ganapathy, Subramanian (India)  
Garratt, Elias (Michigan)  
Ghannam, Talal (Syria)  
Giacherio, Brenna (Ohio)  
Goodman, Nicholas (Michigan)  
Grineviciute, Janina (Lithuania)  
Hasoglu, Fatih (Turkey)  
Hoekstra, Paul (Michigan)  
Kodikara, Ravin (Sri Lanka)  
Kodituwakku, Nalaka (Sri Lanka)  
Lighthall, Jonathan (Michigan)  
Marley, Scott (Michigan)  
Moore, Andrew (Michigan)  
Nandasiri, Manjula (Sri Lanka)  
Rai, Buddhi (Nepal)  
Vyas, Anjali (India)  
Wang, Lihua (China)  
Wang, Xue (China)  
Wei, Haipeng (China)  
Winkworth, Melike (Romania)  
Zhang, Huaizhen (China)  
Zhang, Yingfa (China)

## Department Roster

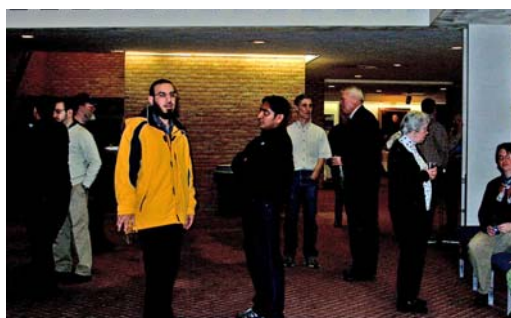
### Faculty

Nora Berrah  
Clement Burns  
Sung Chung  
Michael Famiano  
Thomas Gorczyca  
Dean Halderson  
Gerald Hardie (Assistant Chair)  
Charles Henderson  
Emanuel Kamber  
Asgar Kayani





# Photos from the Holiday Celebration





Western Michigan University  
Department of Physics  
1903 West Michigan Avenue  
Kalamazoo, MI 49008-5252

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