

PHYSICS NEWSLETTER

For Friends of the Western Michigan University Department of Physics

Fall 2012-
Summer 2013



WESTERN MICHIGAN UNIVERSITY
College of Arts and Sciences

Physics Major Part of Sunseeker Solar Race Team

Physics major Kenwood Hoben, a member of the WMU solar race team, was pleased with the eighth place finish for the WMU Sunseeker car in the summer 2012 event. As noted by the team it is quite a challenge to get a car to that point.

The 11-person team ran alongside the low-riding solar-paneled vehicle as it crossed the finish line in St. Paul, Minn. The team raced for eight days through eight states as the car traveled 1,652 miles mostly on solar-powered energy.

Each team of college students races a solar vehicle they've spent years building and modifying.

The WMU solar car had technical problems in the last two cross-country races, held in 2008 and 2010, preventing the car from completing the challenge. In 2005, WMU finished in sixth place.

The American Solar Challenge began in Rochester, N.Y., and all 18 solar cars in the event were required to stop in Kalamazoo at the WMU College of Engineering and Applied Sciences on the Parkview Campus as a

checkpoint. Each team spent at least an hour in Kalamazoo, giving the public an opportunity to get a close-up look at the competing cars.

The University of Michigan captured first place followed by Iowa State University and Principia College. The winning time was 44 hours and 36 minutes. The WMU Sunseeker time was 103 hours with penalties included. The longest elapsed time of 122 hours was registered by Massachusetts Institute of Technology and included trailering penalties.

More information on the solar car race can be found on the following websites:

http://www.mlive.com/news/kalamazoo/index.ssf/2012/07/wmu_solar_car_passes_qualifyin.html

http://www.mlive.com/news/kalamazoo/index.ssf/2012/07/wmu_sunseeker_solar_race_team.html

or see <http://search.mlive.com/kenwood+hoben>

Emeritus Receives Alumni Award

Dr. Robert H. Poel was the 2012 Department of Physics Alumni Achievement Awardee. Bob is an Emeritus Professor of Physics from Western Michigan University, and is still active in the field of science education and science teacher preparation. He was a member of the Mallinson Institute for Science Education (MISE) and Director of the Center for Science Education that provides a wide-range of professional development opportunities for K-12 science teachers via summer short courses, workshops and extended programs with school districts. These efforts were supported by numerous funded grants to the university from the National Science Foundation, the Michigan Department of Education, and regional and local school districts.



Bob Poel (middle) with College of Arts & Sciences Dean Alex Enyedi (left) and Department of Physics Chair Kirk Korista (right)

FACULTY NEWS

We note sorrowfully the passing of three former members of our faculty and staff during the past year.

Dr. Robert Shamu, faculty emeritus, died in October of 2012. **Mr. Robert Scherzer**, our former long serving lab supervisor, died in November 2012. **Dr. Michitoshi Soga**, a faculty emeritus and the key founding member of The Soga Japan Center at WMU, passed away in March 2013. All three of these individuals contributed greatly to the department and the university and they will be greatly missed.

In the fall of 2012, **Dr. Charles Henderson** began his role as editor of the journal *Physical Review Special Topics - Physics Education Research*, which is at the top in physics education. Dr. Henderson and his research were mentioned in President Dunn's opening fall address.

Dr. Nora Berrah won the College of Arts & Sciences Achievement Award in Global Engagement. The award is given to a faculty member who has demonstrated excellence in promoting the college in international teaching or research activities. This was the inauguration year of this award by Arts & Sciences and the department is pleased to have Dr. Berrah as the winner.

Faculty Promotions

Dr. Asghar Kayani received promotion to Master Faculty Specialist.

Dr. Manuel Bautista was promoted to Associate Professor.

ALUMNI NEWS

Dr. Ali Alnaser, who received the Ph.D. in 2002 working under Dr. John Tanis, recently attended the Division of Atomic, Molecular and Optical Physics meeting of the American Physical Society, which was held in Quebec City, Quebec in June 2013. Dr. Alnaser is currently a faculty member at the American University in Dubai, United Arab Emirates. It is good to see our former students with such jobs and who are still able to get around to conferences to report results of their research.

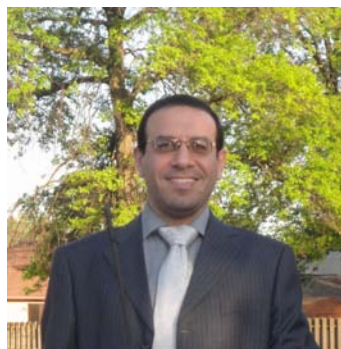
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Dr. Marco Wiedenhoef, a Ph.D. graduate in 2003 working with Dr. Nora Berrah, was recently tenured and promoted to Associate Professor at Olivet College. Congratulations to Marco!

Two recent WMU physics doctorates are moving on to post-doctoral positions in nuclear-physics research. **Scott T. Marley** (pictured on right) is joining the Institute for Structure and Nuclear Astrophysics at the University of Notre Dame. **Jonathon C. Lighthall** (on left) will be joining the staff at the TRIUMF, Canada's premier laboratory for nuclear physics research. The dissertations of both students were based on research carried out at the ATLAS accelerator facility at Argonne National Laboratory in Illinois, outside of Chicago. The other people pictured are Shadi Bedoror (second from left) and Dr. Alan Wuosmaa.



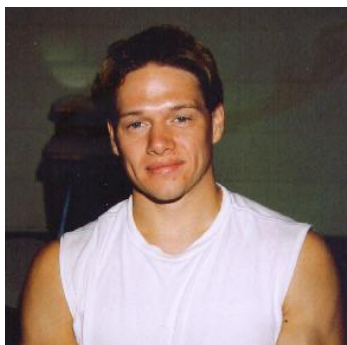
STUDENT NEWS



Dr. Tamer Elkafrawy returned to Egypt following the awarding of his Ph.D. in December 2012 to take a faculty position at Ain Shams University in Cairo. Tamer was also selected as a member of the Honor Society of Phi Kappa Phi prior to leaving WMU.



Dr. Buddhi Rai (Ph.D. 2012) is joining the University of Hawaii - Maui in a tenure track faculty position.



Dr. Elias Garratt was elected as one of the seven fellows from Michigan to participate in the 2012 East Asia and Pacific Summer Institutes' (EAPSI) program, jointly funded by the NSF and Japan Society for the Promotion of Science (JSPS) (OISE-1209475). The EAPSI program is designed to provide young researchers the opportunity to engage in research at the international level and initiate scientific relationships which enable better future collaboration with foreign counterparts. Dr. Garratt received a postdoctoral position at Sandia National Lab.



Dr. Manjula Nandasiri gave an invited talk in September 2012 at Lawrence Berkeley National Lab on "Understanding the structure-property relationship in ceria and zirconia based thin films grown by molecular beam epitaxy". Dr. Nandasiri completed his Ph.D. in April and received a postdoctoral position at the Environmental Molecular Science Lab in Idaho.



Dr. Subramanian Ganapathy attended the Pacific Northwest American Vacuum Society (PNAVS) conference. He received first prize in the Graduate Student poster presentation competition.

Mr. Shadi Bedoor (see picture on previous page) will receive a full-year fellowship for his dissertation "Structural Evolution in the Neutron-Rich Nuclei ^{14}B and ^{13}B ." His dissertation advisor is Dr. Alan Wuosmaa. Mr. Bedoor's work is focused in an area of nuclear physics that is of considerable current interest, namely the structure of "exotic" nuclei – unstable nuclei that are very different from those of the stable chemical elements normally found in nature. The results of this work are already gaining international recognition.

More Student News

Darshika Keerthisinghe was recognized with the Department Level award in graduate research from the Graduate College. This award is given each year to a person who exemplifies excellence in research in the department. Darshika's work involves electrons incident on electrically insulating nanocapillaries at very small tilt angles with respect to the incoming beam. This work is of fundamental interest and is also expected to have biomedical and materials science applications.

Tamer Elkafrawy, Darshika Keerthisinghe and **Samanthi Wickramarachchi** were all selected to give invited talks at the 22nd International Conference on the Application of Accelerators in Research and Industry held in Fort Worth, Texas in August 2012. Talks at such a conference are significant for them individually and represent important milestones in their graduate careers.

Asma Ayyad and **Samanthi Wickramarachchi** attended the prestigious 19th International Conference on the Physics of Highly Charged Ions held in Heidelberg, Germany in September 2012. Both students presented a poster at this weeklong conference and spoke with colleagues doing similar work.



Department of Physics Hosts 2013 Science Olympiad

On Saturday, March 16, 2013, the Department of Physics once again spent a day in support of the Science Olympiad regional competition that was hosted by WMU. In addition to a written test in basic astronomy, which Dr. Manuel Bautista created and supervised, the department took responsibility for four hands-on lab events, more than we have done in any previous year. Three of these four were new events for us, as the state Science Olympiad coordinators rotate events every few years. Since these events took place in our instructional lab rooms in Rood Hall, we were fortunate to have the help of Chris Hoffmann. Chris took charge of the "Metric Mastery" event, Dr. Mike Famiano managed "Mission Possible", and Dr. Paul Pancella coordinated two events testing skills and knowledge of electric circuits, for the middle school and high school level teams.

It was a hectic day, but all the events were successfully managed and the scores were submitted on time. Altogether, about 90 competing science students from area schools came through the lab facilities. The work would not have been done without the help of our physics majors and graduate students: Mady Higinbotham, Kenwood Hoben, Sarah Hulbert, Enrique Gamez, Ioannis Nearchou, Alex Peters, and Mike Pirkola.

Student Awards

Fall 2012 Book Awards

PHYS1040 Alexander Hoopes
PHYS1060 Aaron J. Henry
PHYS1070 Michael J. Carnarvon
PHYS1130 Samuel Vergunst
Ann Smejkal
PHYS1130 Ashley Inman
PHYS1150 Stephanie E. Jerger
PHYS2050 Maren Zanotti
PHYS2050 Evan Monroe
PHYS2050 Matthew S. Garvin
PHYS2070 Nelson de Jesus Lora-Sanchez
PHYS2070 Adam Johnson
PHYS3090 Enrique Gamez

Spring 2013 Book Awards

PHYS 1000 Thomas Rothermel
PHYS 1020 Kyra Wynne
PHYS 1060 Jagjit Singh Sidhu
PHYS1070 Jeffrey D. Wadas
PHYS1130 Benjamin Horrocks
Aaron Huntoon
PHYS1150 Kevin D. Heinze
PHYS2050 Kelsey M. Pitschel
PHYS2050 Ian M Cole
Louis R. Piccione
PHYS2050 Jacob T. Dean
PHYS2070 Matthew S. Garvin
PHYS2070 Zhenggao Cai
PHYS3090 Jagjit Singh Sidhu

Undergraduate Awards

Charles J. Wilcox Memorial Award
Department of Physics Presidential Scholar
Haym Kruglak Undergraduate Student Teaching Excellence Award

Sarah Hulbert
Sarah Hulbert
Christopher Prom

Graduate Awards

Haym Kruglak Graduate Student Teaching Excellence Award
Laurentiu Dumitriu

Haym Kruglak Graduate Student Teaching Excellence Award
Bryan Moore

Haym Kruglak Graduate Student Teaching Excellence Award
Samanthi Wickramarachchi

David Carley Memorial Graduate Award
Katrina Koehler

Leo R. Parpart Physics Scholarship
Darshika Keerthisinghe

Leo R. Parpart Physics Scholarship
Subramanian Ganapathy



Ms. Sarah Hulbert was the 2012-2013 Department of Physics Presidential Scholar and Recipient of the Charles J. Wilcox Memorial Award. Ms. Hulbert is now a Ph.D. student at The Ohio State University.

Spring 2012 Degrees

Bachelor of Science

Katherine Ballman (physics)
Steven Dye (physics)
Robert Ellison (physics secondary ed)
Garrett Marsh (physics)
Brandon Marshall (physics)
Steven Nielson (physics)
Ross Spoelma (physics)
John Stodola (physics electrical engineering)
Shawn Wickham (physics secondary ed)
Philip Pow San Yap (physics)

Master of Arts

Rex Taibu

Summer I 2012 Degrees

Bachelor of Science

Awaab Elhady (geophysics)

Ph.D.

Scott Marley

Summer II 2012 Degrees

Master of Arts

Trevor Stefanick

Ph.D.

Buddhi Rai



WMU Department of Physics

1903 W. Michigan Avenue

Kalamazoo, MI 49008-5252

e-mail: physics-department@wmich.edu

Department webpage: tesla.physics.wmich.edu

Department giving page: tesla.physics.wmich.edu/Giving

Fall 2012 Degrees

Bachelor of Science

Cayla Crandall (physics secondary ed)
Kevan Hess (physics)
Jessica Szkody (geophysics)

Master of Arts

William Oktafbipian Mamudi

Ph.D.

Tamer Elkafrawy

Spring 2013 Degrees

Bachelor of Science

Sarah Hulbert (physics)
Christopher Prom (physics secondary ed)

Master of Arts

Eiman Bokari
Raina Khatri
Bryan Moore

Ph.D.

Elias Garratt
Manjula Nandasiri
Subramanian Vilayur Ganapathy

Summer I 2013 Degrees

Bachelor of Science

Steven Curtis (physics)

Master of Arts

Laurentiu Dumitriu

Ph.D.

Khalil Hamam

