

# WAVELENGTH

Volume 2007 - Issue 1 - February 26

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*The Andrews Physics WAVELENGTH will bring news of interest to our students, faculty, staff, alumni, and friends every month or so. Please send news items, photos, updates, comments, errata & subscription requests to*

*[physics@andrews.edu](mailto:physics@andrews.edu) or*

*Margarita Mattingly  
Chair, Department of Physics  
Haughey Hall 213  
Andrews University  
Berrien Springs, MI 49104-0380*

*We'd also like to know when you'll be in the area so we can make sure we get to see you, go out to eat, get some of your friends together, or just hang out. If you have research or other adventures to share, we'd love to schedule you for a talk. And if you're here for a weekend, don't forget to drop in on eigenTALK and eigenVESPERS.*

## 1 UNIVERSITY NOMINATES PHYSICS MAJOR

31Jan07 -- Sereres Johnston (Sophomore - BS:Physics/Math) has been nominated by the Andrews Physics Faculty for the 2007-2008 Barry M. Goldwater Scholarship, based on her academic and research record and her demonstrated career potential in physics. Supporting materials were sent 31Jan07 under the auspices of Bill Mutch, Chair of the Department of Chemistry, who is the Andrews University Faculty Representative serving as a liaison with the Goldwater Foundation.. The Scholarship Program honoring Senator Barry M. Goldwater was designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences, and engineering. The Goldwater Scholarship is the premier undergraduate award of its type in these fields. In its eighteen-year history, the Foundation has awarded 4,885 scholarships worth approximately forty-eight million dollars.

The one and two year scholarships will cover the cost of tuition, fees, books, and room and board up to a maximum of \$7,500 per year. The Goldwater Foundation is a federally endowed agency established by Public Law 99-661 on November 14, 1986. Past Andrews Physics winners of this competitive scholarship include Melanie Felton (1993 BS:Physics/Math), Marvin Puymon (1995 BS: Physics/Math) , and Stephen Vance (1995 BS: Physics/Math) as well as our newest faculty member Tiffany (Karr) Summerscales (1999 BS:Physics/Math). The Trustees of the Barry M. Goldwater Scholarship and Excellence in Education Foundation plan to award about three hundred scholarships for the 2007-2008 academic year. In 2006, 8 awards were made to Michigan residents. For further information: <http://www.act.org/goldwater/>

## 2 DEMOS CAPTURED INTO MPEG4 FORMAT

31Jan07 -- Video clips of classic demonstrations on old technology laser disks have now been captured in order to make them useable on new technology. Captured images are organized to facilitate finding individual clips. Mickey Kutzner envisioned and oversaw this project, with Maria Lloyd doing the capturing. This project was initially motivated by the *Smart Classroom* upgrade of the Thompson Amphitheatre which will not incorporate a laser disk player into the new control system.

## 3 WELCOME BACK FROM SCANDINAVIA

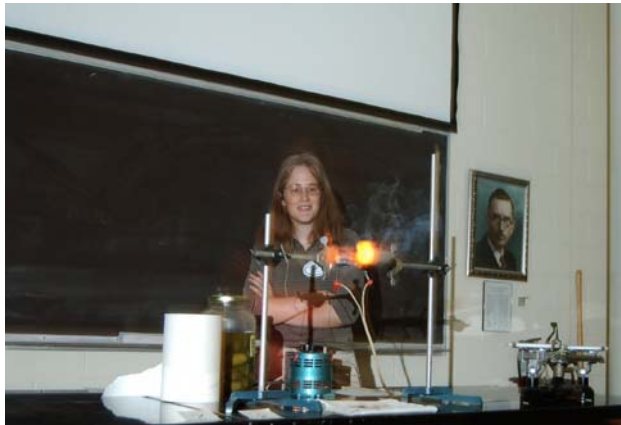
30Jan07 -- Bettina Butenko has returned to Andrews from Denmark, her home, to finish her senior year at Andrews Academy. While she was away, she worked for a large shipping company [Maersk Line](#), based in Copenhagen. We are happy she has also chosen to return to work in our department. It is

quite a change for her, considering the 500 container vessels and almost a million and a half containers that Maersk moves annually. We're sure Bettina will bring her new skills to bear on our projects here. Bettina began to work for our department in September of 2005, helping us with our SmartLabs "AskTeacher" recruitment project by making phone calls to Academy physics teachers to keep them informed of our summer program which includes student participation and college credit possibilities as well as graduate credit for the teachers.



## 4 JUDGES AT BATTLE CREEK SCIENCE FAIR

8Jan07 -- Tiffany Summerscales turned an electrocuted pickle into a sodium vapor lamp (see a similar feat at the September Home Show below)



and Mickey Kutzner turned an alcohol bottle rocket into a reverse flame thrower at the Battle Creek Academy Science Fair. It was pretty exciting, enthralling academy, junior high, and elementary students alike along with their teachers and parents. On the 8<sup>th</sup> of January 2007, Kutzner and Summerscales drove up to Battle Creek Academy with other professors and students from the biology and chemistry departments to participate in the fair as judges. The variety of the science fair projects and the enthusiasm students displayed towards their projects was impressive. After evaluating approximately fifteen science projects they put on a physics demonstration show with dramatic results. Ask them for their stories.

## 5 SUMMER PHYSICS DEPOSITS COMING IN

13Jan07 -- This summer General Physics will be offered again as a condensed course over a 2-month period. Summer Physics will begin on the 14<sup>th</sup> of May and run through to the 6<sup>th</sup> of July. Those taking only one semester will be finished on the 8<sup>th</sup>

of June. Tiffany Summerscales will take the reins once more to teach both semesters of the course. It is a very unique opportunity not offered elsewhere among SDA colleges and universities. Students who stand to benefit are those who are planning on careers in Architecture, Medicine, Pharmacy, Veterinary Medicine, Dentistry, Education, and Clinical Laboratory Science.

Because Summer Physics packs a whole year's worth of coursework into 8 weeks, students avoid the distractions that deter from their concentration on difficult concepts and techniques. A large and vigorous tutoring staff will be at any student's elbow afternoons and evenings for additional support. A talented group of TA's will also be on hand every afternoon to give lab assistance.

Last year, 30 students registered for Summer Physics. At the end, weary but satisfied and successful students were happy to mark off one more profession program prerequisite. They made



frequent comments with respect to how much they appreciated the opportunity to take physics during the summer, the care given by the teaching assistants, the great teacher Tiffany Summerscales with her movies and demonstrations, and the morning refreshments provided by the chair, Margarita Mattingly. Over a dozen students have paid deposits and approximately twenty have indicated serious interest. Interested students should email their questions and/or intention to apply to [physics@andrews.edu](mailto:physics@andrews.edu) and place a deposit at the website [www.andrews.edu/ptc](http://www.andrews.edu/ptc).

## 6 PHYSICS EDUCATION MAJOR APPROVED

18Jan07 -- Undergraduate Curriculum Committee has approved the new Physics Education program on the 18<sup>th</sup> of January. The Physics Education major closely parallels Physics as a 2<sup>nd</sup> Major except for the GE requirement. The GE requirements for the Physics Education major are the same as for Physics and Biophysics.

Students with the Physics Education major will qualify for secondary certification in physics (pending state approval), and fulfill the criteria for the Harder Scholarship. The Harder Scholarship

requires students to complete their program requirements in 4 years to qualify for all or part of the \$28,000 available annually. Graduating with dual majors in Physics Education and Math Education will be possible.

The motivation for establishing a program dedicated to the preparation of secondary teachers in physics stems from the well-known national shortage of science teachers and our department's continuing interest in engaging more students into secondary teaching. Previously, the department had been expending considerable energy in the SmartLabs initiatives to support secondary physics teachers. Recently the department also joined the APS Physics Teacher Education Coalition (see <http://www.ptec.org/>).

## 7 ASTRONOMY TO BE PART OF MAY EXPRESS

12Jan07 -- Mickey Kutzner will teach a 4-week accelerated astronomy course from the 7<sup>th</sup> of May to the 1st of June as part of *May Express*, a recent addition to the University calendar which will serve as a vehicle for students to accelerate their academic progress at Andrews. Provost Heather Knight supports this new collection of intensive courses and has given Assistant Dean Don May primary responsibility for its debut this spring. Because students will only be allowed to take one course at a time during *May Express* there will be greater opportunity for instructors to employ collaborative learning activities, incorporate day-long field trips, and use specially assembled collections of media and laboratory equipment. Kutzner is working on plans for a trip to Adler Planetarium. *May Express* courses will be listed separately in the summer course schedule and students will be required to sign up for and become financially cleared for *May Express* by April 25. Courses that fail to attract at least 10 students will be automatically cancelled on April 25.

Attractive features of *May Express* include *half price* tuition. This mitigates the fact that Andrews Partnership Scholarship funds will not be available during *May Express*. Fees to cover the cost of specialized laboratory facilities, specialized equipment, rental or purchase of specialized media and field trips to off-campus instructional venues will be normal. There will be no refunds allowed once students have started attending a course. Students interested in *May Express* should visit the website <http://www.andrews.edu/academics/mayexpress/>

## 8 DEAN VISITS DEPARTMENT "OFFICIALLY"

25Jan07 -- On the 25<sup>th</sup> of January, Keith Mattingly, the new Dean of the College of Arts and Sciences, visited our department in his new official capacity, joining the physics faculty in their weekly faculty

meeting. He is making such visits to each of the eighteen departments which compose the college in order to more intimately understand their operations and incorporate them into a strategic plan. The Dean, however, is already well-known in our department by both students and faculty as the husband of our chair, Margarita Mattingly, as well as former chair of the Department of Religion and teacher of Western Heritage for our honors physics students. He has been a longtime supporter of eigen\* and a frequent and regular visitor in our department, beginning in 1969 when he began dating the former Margarita Krieghoff.

### 9 FIRST eigenVESPERS AT THE MOORES

12Jan07 -- Robert Moore, chair of the Mathematics Department, with his wife Lois, hosted their first supper-vespers at their home on Shawnee Road, on the snowy evening of the 12<sup>th</sup> of January 2007. Dr. Moore was very busy helping people in the driveway, while Mrs. Moore prepared luscious soups. After the usual, rousing songs, Dwain Ford, former Dean of the College of Arts and Sciences and former Chair of the Department of Chemistry, and a very active retiree, spoke on the topic of "Steps in Coming to Know God". The eigenVESPER theme this year is "From knowing about God to knowing God." Previous speakers this year have included Russel Staples, Clark Rowland, and Carl Bailey. Dr. Ford told story after story from his rich life experience, including the way God touched his life to prepare him to teach in higher education. Nathan Tasker, a visiting alum, also



gave us a peek into some exciting progress on his airline project for the Solomon Islands. Another alum, former eigensecretary Carla Nelson, made it feel like old times with Lloyd Caesar, Tiffany and Rodney Summerscales, and Carl and Rosie Bailey.

### 10 eigenTALKS START WITH RESEARCH OPS

26Jan07 -- The weekly Friday Colloquium speakers for eigen\*TALK included Margarita Mattingly and Robert Moore (Summer Research Opportunities 12Jan07); Mickey Kutzner (Miracles 19Jan07); and

Keith Calkins (The Specht Geometry Project 26Jan07). Alumni and friends are always welcome to join us for eigen\*TALK each Friday at 12:30p in the Thompson Amphitheatre. And of course we encourage alumni to present their research whenever they are in the area.

### 11 CLOUD CHAMBER PRESENTED IN SEATTLE

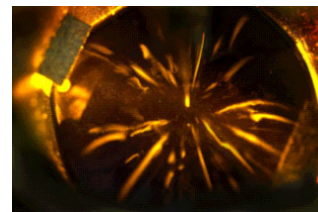
5Jan07 -- Clark Rowland and Bruce Lee presented the Physics Enterprises Diffusion Cloud Chamber (DCC) at a joint meeting of the American Astronomical Society and American Association of



Physics Teachers in Seattle, WA, 5-10 January 2007.

Their poster and display stirred considerable interest in the astronomy sector for its ability to view alpha and beta rays (see photo below) from cosmic as well as radioactive sources. The cloud chamber

is unique in its reliable operation using ice water and a Peltier thermoelectric device rather than classic but cumbersome dry ice cooling methods. The



4-, 5-, and 6-inch models of the DCC are marketed directly at [www.physicsenterprises.andrews.edu](http://www.physicsenterprises.andrews.edu) as well as through Tel-Atomic [www.telatomic.com](http://www.telatomic.com).

### 12 INCENTIVES FOR SCIENCE TEACHING PREP

11Jan07 -- The Harder Foundation plans to fund one \$28,000 or two \$14,000 scholarships next year through the School of Education for Andrews students committed to teaching at the secondary level. This year, the Foundation has modified its criteria by limiting these scholarships to students who will complete their studies in four years while preparing to teach science, mathematics, or computer science. Physics and physics education majors are the only programs at this time that have been identified to fit these criteria. No doubt there will be others, but right now, identifying appropriate candidates will be a high priority for us. It is hoped that this scholarship will be a significant incentive for students to prepare to fill the nationwide need for science, math, and computer science teachers. If you know someone who would like to enter an undergraduate program to prepare to teach secondary physics, let us know.

### 13 UPCOMING IN & ABOUT THE DEPARTMENT

#### march

2	eigen*	TALK:	12:30p	Thompson Amph
4	univ	BOARD BANQUET (admin, faculty & staff)	6:00p	Howard&TerraceCafe
9	eigen*	TALK: Pi Mu Epsilon – Allan Martin	12:30p	Thompson Amph
9	eigen*	VESPERS: A Martin hosted by Summerscales	6:30p	Burdicks
11	dept	Amazing Race, Junior Preview Event	2:15p	HYH217
16	univ	SPRING BREAK begins		
26	univ	SPRING BREAK ends & classes resume		
30	eigen*	TALK: Lynelle Weldon	12:30p	Thompson Amph

#### april

3	eigen*	ASSEMBLY: Advanced Lab Presentations	10:30a	Thompson Amp
6	eigen*	TALK: D Wuchenich & C Armstrong	12:30p	Thompson Amph
6	eigen*	CHEERS: Senior Sendoff	1:30p	TBA
13	eigen*	TALK: Math Student Presentations	12:30p	Thompson Amph
13	eigen*	VESPERS: Bill Richardson	6:30p	Mattinglys
17	univ	Awards Assembly	10:30a	Howard
17	univ	Last day to withdraw with W & change to audit		
20	eigen*	TALK: Advanced Lab Presentations	12:30p	Thompson Amph
26	univ	Last day of classes		
27	eigen*	Sigma Pi Sigma Breakfast Induction	9:30a	Thompson Amph
27	eigen*	TALK: Physics for Scientists Presentations	12:30p	Thompson Amph

#### may

6	univ	Undergraduate Commencement	11:30p	PMC
7	dept	May Express Astronomy begins		
14	dept	Summer Physics I begins	8:00a	Thompson Amph

#### june

8	dept	Summer Physics I ends		
11	dept	Summer Physics II begins	8:00a	Thompson Amph

#### july

6	dept	Summer Physics II ends		
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#### august

27	univ	Fall Semester 2007 begins		
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