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Dear Friend

I am sorry that it took us so long to send out the 2009 fall news letter. It seems that we are getting busier and busier year after year as our physics program grows, but we do remember about our alumni and friends and want you to receive an update on what we do, even if it is somewhat late.

There were a number of important events that took place this last fall.

Our seniors continued working on their research projects. Todd Neer has almost finished the building of a prototype ultrasonic dog deterrent device. He successfully met his main goal of making this device so compact that it fits into a wristwatch case. Despite the number of difficulties with electronic components and power supplies, the device is now ready to be presented to the public. Todd is planning to hold his senior research presentation this week and is on track for graduation in May 2010. Jeanette Schofield has decided to take more time to work on her senior thesis and currently plans on graduating in August 2010. This spring we are having a record high of five juniors to start their senior research proposal. Tylar Murray is researching and designing a hydrogen fuel cell which he will build from scratch. Austin Wegner is researching and designing a wind tunnel. The wind tunnel will be used in future senior projects for studying the effects of wind on various shapes and materials. Aaron Ward is researching and designing an experimental radio controlled air frame which he hopes to carry over into the Marine Corp. Aaron is scheduled to go into active duty after his graduation. Michael Herriage is researching and designing a table top sized cyclotron to be used as a radiation source for scientist interested spectroscopy. Finally, Alistair Adams is researching and designing a gasifier to produce syngas from wood. He then wants to use this syngas in the ethanol fuel synthesis.

Looking at the success of our last year's department 50th anniversary celebration, this fall we have decided to bring back the old tradition of having Science Alumni reception during homecoming weekend. We are always glad to catch up with some of our old friends. This year, David Upshaw shared with us his first year graduate school experience from Texas Tech. We were happy to hear that David is doing well in his studies as well as participating in several research projects. The Science Alumni Homecoming Reception is once again a regular event and we are looking forward to see as many of you as possible during the reception next year.

In mid September all physics faculty and the group of physics students including Michael Herriage, Todd Neer, Aaron Ward, and Austin Wegner has toured a wind energy farm near Snyder. Thanks to Dr. Renfro for organizing this event. We have been able to learn about basic operations of a wind turbine and visited an operational windmill control room for one of the turbines. During the visit, we observed the process of shutting the turbine down and then bringing it back to operation at later time. The subject of alternative energy sources has caused a lot of interest among the students. Several student research projects next fall are related to building alternative energy sources.

In late October a group of McMurry Physics faculty and students including Dr. Bykov, Dr. Keith, Michael Herriage, Michael Luvaul, Todd Neer and Jeanette Schofield have attended the Texas Section APS/AAPT/SPS meeting in Texas State University at San Marcos. Even though nobody made presentations this time, we were excited about attending many interesting talks. The talk which caught most of everybody's attention was given by Dr. Donald Olson of Texas State University. His presentation was on techniques of exact dating of historic events and art based on modern knowledge of location of stars and planets in the sky on certain days in history.

In early September we were glad to learn that the National Office of American Physical

Society has chosen the McMurry freshman physics major, Ashley Kelsey, as a recipient of the 2009-2010 American Physical Society Scholarship for Minority Undergraduate Physics Majors. This is a great honor for Ashley and for McMurry. This is a highly selective scholarship with only about 30 being awarded every year. Applicants come from across the nation, from all institutions of higher education offering undergraduate physics degrees. The goal of this minority scholarship is to increase the number of under-represented minorities obtaining degrees in physics. It provides funding and mentoring to minority physics students to enhance their education and help them prepare for success in various careers.

In early November this year's induction ceremony to Sigma Pi Sigma, National Physics Honor Society was held. Four students including Michael Herriage, Jeanette Schofield, Aaron Ward, and Austin Wegner have become the newest members of the McMurry chapter. These bright young people have already proven themselves as outstanding scholars through their course work and demonstrated outstanding service to the department and our SPS chapter. We believe that they continue to do an excellent job as members of the honorary society.

Among the faculty the following can be noted:

As it was pointed out in our previous newsletters for several years Dr. Bykov was working on modification of teaching strategy in the University Physics course to convert it into a system of flexible instructional modules, where lecture, lab, and discussion are merged into one technologically and collaboratively rich experience. This fall for the first time the course was fully delivered in that format. Student Tablet PCs were actively used as a single unifying technology to improve continuity among various module components. Dr. Bykov has received many positive comments from students. It has become possible to achieve significant improvement in student performance, especially in peer-group activities. Currently the second semester of University Physics is taught in the same format and next year we plan on trying this teaching approach on even larger scale in one of our General Physics I sections in the fall.

This teaching method will work even better if the currently planned renovation of the Science Building will take place during the summer. In the fall the Physics Department participated in the competition of the proposals for the renovation of the Science Building. Our proposal entitled "Flexible Instructional Space for Teaching Science Courses with emphasis on Inquiry and Collaborative Active Learning" consisted of the two parts. The first part of the proposal suggested the modification of the introductory physics lecture room and introductory physics labs into a new instructional space, which will be divided by movable partitions and will allow for teaching of the combined lecture and lab in the same space. It will also allow easy reconfiguration of space to be used for various group activities. The second part of the proposal was concentrated on making improvements to the upper division lab spaces and the department machine shop. We were glad to learn that along with the Biology department's proposal, the first part of the physics proposal was chosen for the winning design. The department is now closely working with Rick Weatherl, the campus architect putting the finishing touches on the architectural design of the new space. We hope that after the Board of Trustees approves renovation plans, the renovation will become possible during this summer.

Dr. Renfro has continued to work on designing of the new "Automated Experiments" course, which would utilize the LabVIEW software as the main platform to collect and analyze experimental data. The course will be very important for students who are planning on careers in industry where LabVIEW is widely used. The course will be taught for the first time in the coming fall.

The department would also like to announce the completion of the first year of the McMurry weather station's wind and solar study. The station, located on the roof of the science building, has been in operation since spring of 2009. The goal of this study is to provide data to evaluate the viability of alternative electrical generation on the roofs of McMurry University. It is also being used by the facilities department to track building temperature and rainfall in an effort to make the university more efficient in facilities and grounds operations.

Dr. Keith will be traveling to the United Kingdom in March to participate in the final meeting of the PEACE instrument team of the Cluster satellite mission. The funding for this mission, which Dr. Keith has participated in since graduate school, is winding down, so this spring is expected to be his last opportunity work on this project

The fall semester has also brought the news of resignation of our long-time leader and Dean, Dr. Gary Wilson. After serving as Dean of the College of Arts and Sciences and then the School of Natural and Computational Sciences for over fifteen years, Dr. Wilson felt that newer and younger leadership style is needed. We are glad to welcome Dr. Wilson back into our family of teaching faculty and look forward to Dr. Alicia Wyatt's leadership as the acting dean of our school.

As usual, I would like to encourage all of you whenever you happen to be in Abilene, to please stop by the department and talk to us about new and exciting things happening to you. Please do meet with our students, they are always eager to hear about what our alumni are doing.

If you know somebody who is interested in physics and can potentially become a student, please feel free to give him/her our contact information and invite to visit us online or in person. Our web site is located at <http://www.mcm.edu/newsite/web/academics/ncs/physics/index.htm>. We try to keep it updated.

Now we also have our page set up on Face Book. Please look for "McMurry Society of Physics Students" and join the fan club. The Face Book account will allow you to be constantly updated on our current events.

If you have been recently added to our database and never received this letter before and/or by some reason want to be removed from the list and/or prefer to update your contact information and/or prefer to receive the electronic instead of the paper copy of this letter, please do not hesitate to contact me at the address above or by email at tbykov@mcm.edu. Also please remember to update your contact information when you move. We have lost contact with some of the alumni who moved without leaving forwarding addresses. If some of your friends are also McMurry Physics alumni, please ask them whether or not they are getting this letter. If not, tell them to contact us and we will be happy to put them on our mailing list.

Tikhon Bykov – Wayne Keith-Timothy Renfro, The McMurry Physics Department