*After*Math

The Newsletter of the Department of Mathematics at Marshall University

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From the Chair

by Ralph Oberste-Vorth

Another year and another commencement is behind us as you read this issue. This is the best time of the academic year. A time when all the hard work finally pays off!

It is also a time of change. Charles Peele announced his retirement, effective this summer, after 41 years of service to the department. That included a remarkable stretch of 11 years as department chair. I am fascinated by the latter figure: after six years as department chair I am ready for a sabbatical.

Several faculty members reached university milestones. Alfred Akinsete was promoted to full professor with tenure. Basant Karna was promoted to associate professor. Scott Sarra, associate professor, was granted tenure. Congratulations to all three!

Congratulations also go to Evelyn Pupplo-Cody, professor, who was awarded the prestigious Marshall and Shirley Reynolds Outstanding Teacher Award. Five mathematics faculty members have now won this annual award. Previous awardees were John Lancaster (1993), Karen Mitchell (1995), David Cusick (1998), and Bonita Lawrence (2005). No other department can boast more than two awards.

It is a pleasure to present to you this issue of AfterMath, which chronicles talented faculty, students, and alumni with one thing in common: mathematics. Enjoy!

Faculty Profile: Charles V. Peele

At the end of this semester we say happy retirement to Charles V. Peele who began his teaching career at Marshall in 1967. He served as the chair of the Department of Mathematics from 1984 through 1995 and says that his greatest achievements were the hiring of some very good faculty, keeping the master's program, and upgrading the undergraduate program.

When asked why he switched from engineering to mathematics, Charlie Peele had the following to say.

I always liked math and had enough credits for a math degree also (as electives) but could only combine physics and engineering for degree purposes (B.S. in Engineering Physics at NC State).

Then I worked as an engineer in California and I converted a problem, which was a nightmare when first assigned to me (to design a test for valves received by my company which were failing on the aircraft) to one of the most delightful problems I ever tackled. I got the problem at 7:30 one Monday morning. My engineering (physics) training did not prepare me for this sort of thing. I talked to one of the engineers, Bob, who was helpful and VERY experienced (gosh, he was probably 26 years old—maybe even 28). He said, go to the Douglas Library down at the end of the room (the "room" was about half a block long, with us in the middle) and just find something – maybe a test you can use. I did, found nothing at all, and later that day went back to my table gloomy. While I was sitting there pondering, Bob asked and I told him what I found. THEN, he said, and I almost quote, "You had more physics than most, and LOTS more math, so come up with your own test!"

Tuesday morning bright and early, I reviewed the situation. I liked fluid mechanics really well and could do basics pretty good, so away I went. Now, it goes without saying, that in a problem of this nature, tolerances are super in importance after the fundamentals are figured out. Of course, with the fluid flow, I used my basic ideas from the basic differential equations courses. Then the big surprise! With all those tolerances I realized what delta-epsilon proofs are all about (at least in my version of applied mathematics). This was very exciting!

I found out from my roommate about six months later that they were going to use the test, but were "cussing me out" because

the dimensions I used for a vacuum sphere scheme that I had devised were very huge and it would be difficult to build such a sphere and they would have to build it in whatever location the testing would be carried out. I had used numbers to make my math easy, so I told my roomie that they can change the numbers. They did not really understand the details of the test so they decided to build it and carry out the test literally by the book (my book, that is). I suggested to my roommate that they could "borrow" me from the other division. Before I could revise that statement my roomie said, "you KNOW they will not do that." For the next month, I worried about it a lot. Finally, he came home one day and said they finished the construction and were going to start testing. I did not sleep too well that night. The next day when I got in the door, he said "It worked—the d___ thing worked." I was very pleased. Then I decided to go back to NC State and get an MS in applied math, not engineering and not physics.

Dr. Peele has seen some interesting changes while he has been at Marshall. He said that the job of Department Chair has become much more administrative than it was and use of computers has changed the way mathematics is taught. After retiring, he plans to travel and possibly study some more.

We wish Charlie Peele a happy and long retirement! Thank you for your many years of service.

Alumna Profile: Pamela Sturm Anderson

As the Assistant Vice President for Planning and Advancement and Director of Institutional Research at West Virginia State University, Dr. Pamela Sturm Anderson puts her knowledge of statistics to good use. She is responsible for university accreditation support, assessment, and institutional research. Pam has also coordinated the writing of the university's self-study for its 2005 accreditation review.

Those of us at Marshall University who had Pam in class in the bachelor's or master's programs are not surprised at her remarkable career. As a student, Pam Sturm was incredibly focused and disciplined. She honed her natural talents in mathematics into a career in statistics. An Ed.D. in Higher Education Administration, also earned at Marshall University, has opened many career paths to Pam.

No doubt, some of Pam's discipline and leadership skills come from her training with the U. S. Army. She planned and managed a tactical communications link from an Eastern bloc front line U.S. Army force to corps headquarters while supervising a platoon of 45 soldiers in the 93rd Signal Brigade in Germany. She assumed the position of acting commander for six-months during that rotation. After returning home, Dr. Anderson planned, directed, and evaluated unit training for staff and faculty of the 2093rd USARF School. As part of the U.S. Army Reserves, 38th Ordnance Group, Pam was a senior staff officer responsible for command-wide electronic communications planning and operations. As a Captain in the U.S. Army Reserves, she had plenty of opportunities to perfect her management and leadership training skills. For her service to her country, Dr. Pamela Anderson has been awarded the Army Service Ribbon, Army Foreign Service Ribbon, Army Commendation Medal, Army Commendation Medal (Second Oak Leaf Cluster), and the Army Achievement Medal.

Pam was appointed as West Virginia State University's first institutional research officer in 1988. She certainly has the broad statistics background needed for such a position. Pam is also experienced in all phases of research processes from literature reviews to preparing the final technical reports. She has written many such reports for both State and Federal agencies. Before this appointment, Dr. Anderson was responsible for descriptive and inferential statistical analyses used in planning and evaluation as a Senior Statistician for the West Virginia Department of Human Services.

West Virginia State University is fortunate to have such a talented statistician and administrator on its staff. Pam has a very impressive track record while working with grants. She established the first office of sponsored programs at WVSU in 1989, which has enjoyed a funding rate of over 52 percent. Grant related revenues in the 1990s soared from less than $1 million annually to more than $11 million under her leadership. She has also served as the administrator of the university's multi-million dollar Federal Title III B grant and authored the institutions comprehensive development plans.

In her spare time, Pam consults, performs com-

munity service, writes publications, makes presentations, and offers workshops.

Pam is remembered fondly at Marshall University's Mathematics Department, not just for her dedication and excellence as a student, but as a genuinely nice person.

Construction of the Four Integrator DA Nears Completion

by Saeed Keshavarzian

This past summer, the Marshall Differential Analyzer team began construction on a larger differential analyzer. This differential analyzer, which was planned by Bonita Lawrence, professor of mathematics, has four integrators, input and output tables, and also a section of interconnect that gives a greater degree of freedom in setting up differential equations. Construction began in May of 2007 and Marshall University had a running four-integrator differential analyzer at 11:30 p.m., March 13, 2008. During this construction many other great things also happened for the project and the students involved. Richard Merritt won a N.A.S.A scholarship for his work on the project. Stories on the project made the media, on West Virginia Public Radio and on Marshall University's television and radio stations. The larger differential analyzer, named Art after Arthur Porter, amplifies torque by use of a set of polarized disks and a Motorvator. This makes Art a more complex machine than Lizzie, the team's smaller two-integrator machine. Art can solve up to fourth-order differential equations, some being non-linear by making use of the input table.

Since this larger differential analyzer uses a more complex method of torque amplification, some programming was involved, and for that our mentor, Tim Robinson, came from California to aid us with this task, which was the final step in having a functional differential analyzer. While Robinson was here, a reception was hosted by President Kopp to welcome our esteemed guest. There was a great turnout of faculty and students who are supporters of the project.

During Spring Break, Lawrence, Brooks (associate professor of mathematics), Saeed Keshavarzian, and Rebecca Klug traveled with Lizzie to Charleston Southern University in Charleston, South Carolina. They were invited by the CSU's Mathematics Department to give a talk about the MU DA Project. The audience members consisted of faculty and students from the Mathematics, Physics and Education Departments at the University. Following the presentation, the audience was so enthusiastic, that many of them stayed an hour after the talk to ask questions, have discussions, and take pictures of Lizzie on their camera phones! Then Lawrence traveled to Missouri University of Science and Technology to visit the Mathematics Department in order to speak about and demonstrate how Lizzie works.

The team is still working with persistence on a daily basis in order to complete its future plans. Art is still in need of an input table, while the output table is nearly ready. Once these tasks are completed, Art will be ready to run its first problem! Finally, the team submitted an abstract for the 2008 Sigma Xi Research Day. The poster and DA got lots of attention and the team took second place at ΣΞ.

It has been nearly one year since the team began building Art and they are now reflecting on all of their accomplishments. The MU DA Team is very proud of the work that they have completed and are thankful for all of the support they have received from Marshall's Mathematics and Physics Departments and all other supporters of the project in the Marshall community.

Our 2007–08 Graduates

We would like to recognize recent graduates who were honored at the May Commencement. Other majors and concentrations are in parenthesis.

Those who graduated Summa Cum [3.85,4.00], Magna Cum Laude [3.60,3.85), or Cum Laude [3.30,3.60) are noted. Michael Price was a Yeager Scholar and Ashley Ezell was a John Marshall Scholar. Both graduated with University Honors.

Bachelor of Science in Applied Mathematics

May 2008

John Fishman
Patrick Riley (Cum Laude)

December 2007

Saeed Keshavarzian

Bachelor of Science in Mathematics

May 2008

Ashley Renee Ezell (Summa Cum Laude)
Anthony Bryan Justice
Richard P. Merritt
Jason Michael Moore
Michael Jayson Price (physics, Magna Cum Laude)
Ashley Claire Stewart

December 2007

Christopher Rexrode (Cum Laude)
Devon Anne Tivener (Cum Laude)

August 2007

Jessica E. Briscoe (Cum Laude)

Master of Arts in Mathematics

May 2008

Steven A. Lacek
Tue Ngoc Ly
William Michael Morrison
Issa Traore
Lin Yuan

December 2007

Walter W. Mayo

Master of Science in Physical Science

May 2008

Edward John Balthazar (mathematics)

BA Secondary Education, Mathematics 5–12/Adult

December 2007

John C. Fields

BA in Secondary Education, Mathematics 5–9

December 2007

Amanda Katherine Stephens (science 5-adult, Cum Laude)
Joanna Marie Thornburgh (Spanish 5-9)

MA in Secondary Ed., Math through Algebra I

December 2007

Denise Spratt

Masters Theses (advisor names in parentheses)

Edward John Balthazar (Nicola Orsini)
Residential Building Energy Consumption and Loss Reduction Methods

Steven Anthony Lacek (Alfred Akinsete)
Non-Premptive Shunting in M/M/1 and Dynamic Service Queueing Systems

Tue Ngoc Ly (Ariyadasa Aluthge)
Limiting Problems in Integration and an Extension of the Real Numbers System

Lin Yuan (Alfred Akinsete)
Analysis of Listing Price Option on eBay Market

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