Chair’s Corner
by
C.S. Chen

It has been three years since I took the position as the department chair of mathematics at The University of Southern Mississippi. I am fortunate to have many faculty members who are willing to assist me in moving the department forward. As a whole, the department has made steady progress toward our mission and goals. As a result, the department has a very positive image within the university. Not only is our productivity on the rise, but also our resources. The computational mathematics will remain the focus in research in this department. We will continue to strengthen our research effort in this area. With all the support from upper administration, we expect to create a statistics program in the near future.

The department received major media attention when in 2007 it received a gift of $2.9 million left by Mr. and Mrs. Wright W. and Annie Rea Cross for the establishment of the Cross Endowed Chair in Mathematics and Endowment for Undergraduate Research. This is the largest donation to a single department in the history of the university. This gift provides a golden opportunity for the department to strengthen our undergraduate research program. It is important to recognize the enormous impact the endowment will have upon the growth of the department and the expansion of academic programs that we will be able to offer to students.

After serving as the chair of the Department of Mathematics for 16 years and serving The University of Southern Mississippi for 35 years, Dr. Wally Pye retired in May 2007. He has devoted his entire career to this department, making many valuable contributions to the progress of the department over the span of 3 ½ decades. We are all indeed indebted to Dr. Pye for his leadership and value highly his continued friendship.
In addition, Dr. Myron Henry retired after he completed the program of Summer Mathematics Institute in July 2008. He served as provost of Southern Miss from August 1998 until January 2001. Before coming to Southern Miss, Dr. Henry was provost of Kent State University (1992-98), provost of Old Dominion University (1987-92) and dean of the College of Arts and Sciences at Central Michigan University (1980-87). Dr. Henry has made significant contributions in higher education and should be very proud of his distinguished career in academia. During the past five years, Dr. Henry has obtained more than $1 million in external funding to establish the Summer Mathematics Institute at Southern Miss. His contributions to the growth of the department are enormous. We wish Drs. Pye and Henry the best in their retirement.

After one year of intensive planning, the Department of Mathematics launched a new facility in the spring of 2007 called the Math Zone, a computer-based learning and tutoring center for MAT 099 (Intermediate Algebra) and MAT 101 (College Algebra).

With the full support of Dean Rex Gandy and with the necessary external funding, the department was able to overcome financial difficulty and to make the Math Zone a reality. In addition, Mrs. Janice Fletcher, the Math Zone coordinator, has worked full time over the past year in overseeing the daily operation of the Zone, in responding to the multitude of problems and questions that have occurred in the first year of the Math Zone, and in coordinating the work of the many faculty members who volunteer their time in tutoring students in the Math Zone. With the collective effort from the whole department and after one full year in operation, we have made great progress in this program. The improvement in MAT 101 is especially noteworthy. In the fall of 2007, the success rate (grade of C or higher) in MAT 101 increased from 48 percent in 2006 to 69 percent. As a result, we have received extensive media attention from the local newspaper and television station. With continuing support from the upper administration, we have secured the old Textbook Center (located in front of the library) for the next Math Zone location. The new space will allow us to house
150 computers – more than double our current Math Zone capacity. Moreover, a lecture room with 47 seats and space for five additional offices will be provided. Dean Gandy has succeeded in securing $1 million in state funding to renovate this facility which will open by August 2009. The department has established a team led by Dr. Piazza that is working on a grant proposal in the area of course redesign to obtain external funding to support the operation of the new Math Zone.

**Chen’s Extensive Travel Worldwide**

In early April 2007, as a member of the organizing committee, Dr. Chen was invited to attend the International Conference on Computational Methods in Hiroshima, Japan. Before the conference, he was invited by professor Y. Ochiai to visit Kinki University in Osaka and to give a colloquium talk.

At the end of the same month, Dr. Chen visited professor Vladimir Komish at the Academy of Armed Forces in Slovakia to work on a European Union (EU) grant proposal. He also visited Dr. J. Sladek at the Academy of Sciences during his time in Slovakia.

During the summer of 2007, Dr. Chen traveled extensively in Europe. In early June, he first visited Dr. Victor Popop for research collaboration at Wessex Institute of Technology (WIT) in the United Kingdom, where Dr. Chen spent his sabbatical leave during 1996-97.

Following his visit to WIT, he co-chaired the first International Workshop in the Method of Fundamental Solutions with his European colleagues, professors Andreas Karageorghis and Y.S. Smyrlis, at the University of Cyprus in the resort town of Ayia Napa, Cyprus. The workshop, which took place June 11-13, was attended by 32 participants from 13 countries worldwide. Among all participants, there was an even mix of mathematicians and engineers. Thus, the workshop provided an excellent platform to bridge the gap between theory and practice. An edited research monograph entitled “The Method of Fundamental Solutions – A Meshless Method” is expected to be published soon as a result of this international workshop. The academic visibility of The University of Southern Mississippi will be further enhanced by such international scholarly activity.

After the workshop, as a member of an international scientific advisory committee of ICCES Symposium on Meshless Methods, Dr. Chen attended a conference June 15-17 in Patras, Greece.

In early September, as a member of a thesis committee, Dr. Chen was invited by professor Bozidar Sarler to attend an oral thesis defense at the University of Nova Gorica in Slovenia. In November, during the Thanksgiving holiday, Dr. Chen went to the United Kingdom to participate in a workshop designated for a future EU project. In December, Dr. Chen visited professor Z.C. Li at National Sun Yat-Sen University in Taiwan for research collaboration and presented a colloquium talk.

Overall, Dr. Chen made four separate trips to Europe and visited seven countries in 2007 to promote scholarly activities which included organizing conferences, collaborating on research, preparing joint research proposals with colleagues overseas and attending a thesis oral defense.

**Teaching and Scholarship**

Dr. Joseph Kolibal was invited to provide two lecture series at Korea University in Seoul, Republic of Korea, on engineering mathematics and on numerical methods during the summer of 2008. The invitation followed the previous year's award of a summer position as a visiting scholar in the School of Engineering and represents a continuing opportunity to represent the department and the university abroad.

Dr. Kolibal had the opportunity to attend and present at the ICCES Symposium on Meshless Methods in Hawaii from March 18-23, and presented a paper at the EMRS DTC Conference in Edinburgh from June 22-23.

Dr. John Perry's research in the field of computational algebra has led to a new characterization theorem for Grobner bases, as well as a new explanation of a difficult algorithm previously described as "not
well understood." He and a colleague at a German university refined the same algorithm to work much more efficiently.

In teaching, Dr. Perry directed three undergraduate research projects, one of which expands the class of inputs for an exotic method to compute determinants. Along with Drs. Kolibal and Lee, he won a grant to develop a series of online, interactive lessons to improve calculus instruction at Southern Miss.

**International Research Collaboration**

In August 2007, a NATO Collaborative Linkage Grant entitled "Modelling Terrorist Attacks on Environmental Pollution Problems" was awarded to Dr. Chen, the project coordinator, and his team members, Drs. Joseph Kolibal and Haiyan Tian. Dr. Ahmed Naji from Morocco and Dr. Sergiy Reustskiy from Ukraine are also project members from other NATO countries and partner countries. In order to collaborate on the NATO project more closely, Dr. Naji was invited as a visiting scholar to teach during spring 2008 and join in research with the NATO team members in the department. In June 2008, Dr. Chen visited Dr. Naji and his research team at Abdemalek Essaadi University in Morocco to work on the final report of the project.

**Dr. Jiu Ding's Writing**

Dr. Jiu Ding's graduate textbook, "Statistical Properties of Deterministic Systems," will soon be published by Springer-Verlag. Its original Chinese version was published in January 2006 and reprinted in December 2006 by the Tsinghua University Press. Dr. Ding's second textbook, "Nonnegative Matrices, Positive Operators, and Applications," will be published by the World Scientific Press in 2009. Dr. Ding's article, "Fascinating Feynman," about the great American physicist Richard Feynman, was published before Feynman's 90th birthday by the Science Times, China's only national newspaper devoted to science and technology.

**Math Summer Institute**

Southern Miss has been funded for the sixth consecutive year by the U.S. Department of Education to offer a month-long summer institute for in-service middleschool mathematics teachers. Dr. Myron Henry, director of the institute, noted that a total of 27 teachers are participating through the month of June, the largest number yet. The institute features "teaching and learning of mathematics content through the use of technology." The Hattiesburg Public School District, a main Southern Miss partner for the summer mathematics institutes, hosts the institute at its Harper-Wallin Family Education Center computer laboratory, and the project is administered through Mississippi Institutions of Higher Learning. Dr. Henry commented that "our team is fortunate to have been awarded about $1.1 million over six years to provide professional development opportunities to in-service teachers. We are also fortunate to have worked with 146 middle school mathematics teachers over this period. They exemplify the best in the teaching profession."

**Tenure and Promotion**

Dr. Sungwook Lee was awarded tenure and promoted to the rank of associate professor. We congratulate him and look forward to the contributions he will make to help in moving the department forward.
New Faculty Members
We have hired three new faculty members, Dr. Jeremy Lyle in graph theory, Dr. Chenhua Zhang in statistics and Dr. Ryang in algebra and math education. Dr. Lyle and Dr. Zhang will begin their work on the Hattiesburg campus and Dr. Zhang on the Gulf Coast campus in the fall 2008.

Department Car
We purchased a department car (Ford Focus) in October 2007 for faculty members to use in attending conferences, giving seminar talks in other institutions or engaging in other scholarly activities in the department.

Awards and Fellowships
Dr. Ding received Southern Miss’ University Innovation Award in Basic Research in fall 2007.

Michael Howard has received both a Southern Miss Doctorate Assistantship ($18,000) and a NASA Fellowship ($17,000) for 2007-08. The competition for these awards is very great. We are glad that our graduate students are successful in competing for assistantships and fellowships at the university and state levels.

External Grant Awards
The total amount of external grants awarded to the department in 2007 was $703,233. The department has made significant improvement in external funding which is a key indication of the progress of the department. We thank faculty members who work hard to improve our funding record.

2007-08 Scholarship Recipients

Wendy Behrens……………………………………………………………………Wright W. Cross ($2,246.17)

Emily Howell……………………………………………………………………Fred H. and Nadyne M. Drews ($1,663.45)
ALton C. Grimes ($647.01)

Chaz Ladner……………………………………………………………………Wright W. Cross ($600)

Deanna Leggett……………………………………………………………………Virginia Felder ($1,376.13)

Blake Watkins……………………………………………………………………Wright W. Cross ($600)
Jack D. Munn Memorial ($502.24)