
A f t e r m a t h

Words from the Chair

by Aaron Bertram

It looks increasingly like the end of this year will be the midpoint, rather the endpoint, of my term as chair. Looking back over the past three years, I see much for us to celebrate. Our graduate program is firing on all cylinders. Our PhD students are, as always, doing extremely well on the academic job market. Thanks to external funding, we are currently able to support a large contingent of extremely talented postdocs, as well as numerous research projects for our undergraduates and exciting outreach activities for local high school teachers and students. All of this is ably assisted by our wonderful staff. The most recent seven-year external review of our program, conducted this past Fall, gave us high marks on all these points, but they also warned that retaining our faculty is going to be a continuing challenge.

So should we sit on our laurels? Of course not. There is much that needs to be done. Some areas of concern (in no particular order) include:

Hiring: This has been a strong point for us, but is a continuing challenge. Unlike a Harvard or Princeton, we need to generally hire young and count on a positive derivative (and, if possible, second derivative). Strong hires, especially in the fields of Statistics and Applied Math remain critical for the health of the Department.

Graduate Program: We need to plan for the post-VIGRE/IGERT era. Clearly our other strong research groups should emulate math biology and apply for RTG grants, but we also need to diversify and find alternative sources for graduate fellowships. The funding from the University alone is not sufficient to support the program we have grown to enjoy.

Undergraduate Major: I think we can all agree that we would like to see more talented undergraduates enrolled in post-calculus courses. It seems difficult to convince many more students to “single” major in mathematics, but a double major closely aligned with a second major in finance, engineering or economics, for example, is a much easier sell. UCLA and Berkeley have had great success designing tracks for their majors, and the undergraduate curriculum committee proposes to

do the same, starting with new Applied Math and Statistics majors to add to our existing Math and Math Education majors.

Service Courses: Why do so many students fail their required basic mathematics courses year after year? This is, of course, a continuing problem for all mathematics departments (I just dug up a school paper article from the 70’s asking this very question). Student ACT scores seem not to be highly correlated with future success, and willingness to work seems to be an equal, if not greater, factor than mathematical aptitude in determining whether our students pass our classes. Utah State University has worked out an interesting placement and refresher course program using the College Board’s Accuplacer test. We are looking into a similar arrangement.

Continuing Education: Continuing Ed currently teaches math courses all the way up through Math 2210. The math department has traditionally shied away from managing courses taught off-campus, but this is increasingly untenable given the current budget paradigm. Math courses in Sandy and Bountiful are not going away. We need to find a way to take these over ourselves, not only for the sake of our financial health, but also to insure that these students also receive a University of Utah-level education.

Graduation!

This year approximately 60 undergraduate mathematics majors will receive a baccalaureate degree. Twenty-one students will receive a Masters degree in Mathematics and four will receive the Master of Statistics degree. Students receiving the Ph.D. in 2007 - 2008 are Erin Chamberlain, Berton Earnshaw, Yoshihiro Iwao, Meagan McNulty, William Nesse, Qiang Song, Josh Thompson, Gueorgui Todorov and Dali Zhang. Congratulations graduates!!



Mladen Bestvina: Distinguished Professor



Congratulations to Mladen Bestvina, who was named one of five new Distinguished Professors at the University of Utah this year. The others honored are Robert Keiter, Law; Jan Miller, Metallurgical Engineering; Richard Normann, Bioengineering; and Yong-Shi Wu, Physics. The list will be presented to the Board of Trustees at its next meeting for final approval.

Mladen joined our faculty in 1993 after an associate professorship at UCLA and visiting positions at MSRI, IHES, IAS in Princeton and Berkeley. Mladen completed his Ph.D. at the University of Tennessee under the direction of J. Walsh. He is a leading authority in geometric topology and geometric group theory. Mladen is editor of eight mathematics journals, has organized numerous special semesters and conferences in geometric group theory and topology and has directed eleven Ph.D. students, seven at Utah. Mladen is a terrific lecturer who received the department's Faculty Undergraduate Teaching Award in 2006.

Mladen views algebraic problems geometrically by studying actions of infinite groups on topological spaces. He has made many fundamental contributions to the field of geometric group theory. Among them are Bestvina-Brady Morse theory for studying the finiteness properties of groups, the Bestvina-Handel algorithm for studying dynamical properties of homotopy equivalences of graphs or surfaces, and the Bestvina normal form for Artin groups.

Tim Foliass: Emeritus Professor

by Andrej Cherkaev



Professor Efthymios (Tim) Foliass has a long distinguished career as an applied mathematician and engineer. His scientific interests are in applied partial differential equations that describe complicated mechanical behavior of materials. Specifi-

cally, he studies crack propagation emphasizing 3D effects, stability of and fracture in pressurized shells, fracture in composites, viscoelastic flow, imperfect boundary contacts, influence of defects, failure due to thermoelastic stresses and stress waves, and other aspects of failure and stability of modern materials. His study influenced generations of researchers and engineers. The "Folias criterion for failure" is routinely cited by specialists in fracture. Mostly, Tim Foliass worked with various high-tech applications such as pressurized vessels, fiber composites, penetration, and similar challenging problems. The analysis of such complicated phenomenon requires a combination of modeling, analysis, and computations, in which Tim is an expert.

Tim Foliass received his PhD from CalTech (Aeronautics and Mathematics) in 1962. He spent the next several years as a researcher, joined the University of Utah in 1966, and became Professor in 1973. In the next decades, Tim served in the Math Department as well as in the College of Engineering. He held several leadership positions at the U. Tim bridged several departments, offering his mathematical sophistication to the engineers and his knowledge about practical challenges to mathematicians. His research was funded by NSF, NASA, AFOSR, ONR, and by industrial grants (Phillips Petroleum).

Tim is retiring at the end of this academic year and has been awarded the title of Professor Emeritus. We will miss him and wish him well.

Pieter Bowman: 20 years of service



Pieter Bowman, computer guru extraordinaire, has given the university 20 years of full-time service. Pieter has actually worked for the U much longer, but his first few years here were spent working part-time. Pieter began working for the College of Science Com-

puter in 1981, and later moved to the Math Department (lucky for us!). Pieter does an incredible job keeping our computers up and running and we appreciate him very much.

State Math Contest

by Kelly MacArthur

For the last three years, we have hosted the State Math Contest, an event in which over 2000 7th-12th grade students from all over the state participate. We put together two 30-question, multiple choice exams, one for 7th-9th graders and another for 10th-12th graders. The students come to campus one day during spring break to take the exams. We then have an Awards Banquet in late April to give our individual awards to the top 6 winners in each grade, as well as team/school awards to the top scoring three teams in each grade, in two categories – small school and large school. For me, the best part is walking around campus on the day of the contest, hearing all sorts of students discussing the exams and getting excited about doing mathematics. The questions on the exams have a range of difficulty levels, with some truly challenging questions that help distinguish excellence among the participants. The top students are truly talented in mathematics and this provides a very exciting forum for them to compete and share the joy of problem solving. Next year, the contest will be hosted by Utah Valley University (formerly UVSC) for their 3-year rotation. The contest will not come back to the U of U for another 12 years.



Editors' note: The department wants to recognize Kelly and Paula for the many hours of work they put into the State Math Contest these last three years. They've done a great job!

Aftermath is published monthly during the academic year. If you have an idea or article to submit contact one of the editors:

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