
APPLIED MATHEMATICS NEWSLETTER

UNIVERSITY OF COLORADO AT BOULDER

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FROM THE EDITOR

This is the third edition of the Applied Mathematics newsletter; it is becoming a habit! As always, our goal with the annual newsletter is to keep you informed with what has been happening in the department as well as to provide a venue for our alumni to keep in touch with one another and with us.

It has been an exciting year in Applied Math with several changes and new faces. It has also been personally challenging, as I have taken on the responsibilities of Associate Chair. As our department gradually increases in size, it becomes even more important for us to maintain, and increase, contacts with our alumni.

We would like to encourage you to write to us and let us know what you are up to. If you wish your contribution to be included in the next newsletter, please let us know. We'd love to have a few sentences or an entire article. Feel free to update your information online at our website <http://amath.colorado.edu/alumni> or fill out the enclosed information sheet and return it to us.

Best wishes to you all,
Anne Dougherty (editor-by-default)

FROM THE CHAIR

2000-2001 was a transitional year for the Department of Applied Mathematics, with major changes in personnel, and with more gradual changes in the way the Department carries out its mission.

The most important change occurred one year ago, when Mark Ablowitz stepped down as Department Chairman, and Harvey Segur

assumed that role. Mark moved to Colorado in 1989 in order to create a new Program in Applied Mathematics. It is well documented how well he has carried out that charge. The Program in Applied Mathematics began in 1989-1990 with four tenured or tenure-track faculty, one post-doctoral instructor, a staff of one, and no graduate students. The Program became the Department of Applied Mathematics in 1996. In 2000-2001, the department had 14 tenured or tenure-track faculty, 9 post-doctoral instructors, 7 research associates, a staff of 7 (some full-time, some part-time), and 61 graduate students. Mark's high standards have been an inspiration and a challenge to the rest of us. Thank you, Mark, for all you have done for this department.

Also one year ago, James Curry stepped down as Associate Chair, and was replaced by Anne Dougherty. James' resignation as Associate Chair freed him to carry out new projects that he had been quietly formulating while he arranged course schedules and advised students. His service to the University may even have increased since he stepped down. This department owes continuing thanks to James for his many contributions. Anne is particularly grateful for the help and guidance that James has provided throughout the transition.

During this year, we were pleased to welcome Jem Corcoran as a new Assistant Professor, and bid farewell to Professor Bob Easton, who retires after 28 years at CU.

Meanwhile, the department has been gradually changing how it carries out its mission. An important part of our departmental mission has always been to help others to apply mathematics to their needs. As the needs of society and of the University change, this department must also change in order to carry out that goal effectively.

One set of changes began two years ago with an NSF grant called VIGRE (Vertical Integration in Research and Education). The grant has brought more post-doctoral researchers and instructors into the department, with a corresponding increase in level of activity and research.

In addition, several of our undergraduate majors now participate in original research projects. Without exception, undergraduates who have participated in these research projects have gone on to graduate school after leaving CU.

A different set of changes involves our identifying new areas of application of mathematics. These new applications and connections include the following:

- As a result of new partnership with Sun Microsystems (whose headquarters for Educational Services are in Broomfield), our department now teaches two courses in JAVA programming, some of our graduate students are JAVA-Certified Instructors, and some of our students (both undergraduates and graduate) have become interns, or employees at Sun.
- By the fall semester, 2002, we hope to offer a joint Master's degree program between our department and the Department of Molecular, Cellular, and Developmental Biology (MCDB). Students graduating with these two Master's degrees (one in APPM, one in MCDB) will be well positioned to enter the emerging field of bioinformatics.
- A *Summer Institute in Applied Mathematics* now allows high-school teachers to refine and update their mathematical skills.

As our society changes, the Department of Applied Mathematics must also change in order to meet the changing educational needs.

The new programs listed above are examples of such changes. On the other hand, an appealing feature of mathematics is that even in a changing world, mathematical facts do not change: the value of π is the same as it was in biblical times. The challenge for education in our department is to present timeless mathematics in such a way that it's relevance to today's problems remains evident, even as the problems change. The challenge for research in our department is to identify new problems in which mathematics is relevant.

Harvey Segur, Chair
segur@colorado.edu

THOUGHTS UPON RETIREMENT:

BOB EASTON

To retire means "to designate as no longer qualified for active service", "to withdraw for the sake of privacy and seclusion", "to withdraw from action, or danger: to retreat". None of that seems to fit what I am doing. I like to think that I've finally graduated from college.

Life is a strange journey. I marked the passing of youth when I became Doctor Easton. In middle age I was a professor. Now I immodestly hope to become a wise child and reclaim paradise. The gifts of childhood are wonder, innocence, and imagination. Play is a child's occupation, and henceforth will be mine. From blue sky and brown earth I'll conjure a new life.

Some professors hang on as long as they can speak and wave chalk. I thought I should inspire or expire. I now face the daunting prospect of total freedom. However my young buddy Henry David Thoreau says I've been a fool. "This spending of the best part of one's life earning money in order to enjoy a questionable liberty during the least valuable part of it reminds me of the Englishman who went to India to make a fortune first, in order that he might return to England and live the life of a poet. He should have gone up garret at once." On the other hand Henry died young, and I, at least, still have my liberty.

Henry was master of the rhetorical question. "By the blushes of Aurora and the music of Memnon, what should be man's morning work in this world? I had three pieces of limestone on my desk, but I was terrified to find that they required to be dusted daily, when the furniture of my mind was undusted still, and I threw them out the window in disgust." To those who are busy, he admonishes: "Our life is frittered away by detail. Simplicity, Simplicity, Simplicity!" I think I'll clean off my desk!

I've always admired the way Charles Darwin lived his life. His morning work was science. He spent the afternoon and evening with family and friends. I sometimes deeply regret that I never had a family. But the past is beyond reach and the present moment is my concern. How to live a decent, joyful life? What is my morning work? Like Henry I've gone to the woods and built a cabin. I intend to read, write, create, conspire and perspire with friends, run, dance, and climb

mountains. And maybe something brand new will happen.

Editor's Note:

This fall about sixty mathematicians will converge on Boulder for the Midwest Dynamical Systems (MWDS) meeting. This meeting, October 5-7, will honor the career of Bob Easton in several ways. Firstly, Bob has been an active participant in many of the MWDS meetings during its 31 years of existence. During one recent anniversary conference, he was invited to talk about his experiences in the meeting, and reminisce about the work of his Ph.D. advisor, Charlie Conley. Secondly, this year's conference will have, as one of its themes, the concept of the Conley index that Bob pioneered with Charlie. Finally, on Saturday, Oct 6, we will have a banquet honoring (and roasting!) Bob Easton.

THE MATHEMATICAL CONTEST IN MODELING – WHAT AN EXPERIENCE!

SAVERIO ERIC SPAGNOLIE
APPM UNDERGRADUATE

In a grueling 96-hour sleep-deprived, food-starved, mad mathematical scramble, we were presented with the opportunities to compromise, work toward a common goal, stand firm in the face of obstruction, and (above all) live passionately. The occasion? This year's Mathematical Modeling Contest.

The contest problems were simultaneously released worldwide on the Internet (10:00 p.m. MT); within an hour, our three-member team had determined which of the two problems to attack and compiled a list of possible directions in which to take the problem. By 1:00 a.m., we had done significant internet-based research on various aspects of our problem and were prepared with a priority list to tackle the following morning.

The next four days were some of the most arduous and intense days of our lives. We brainstormed and quibbled over various mathematical and physical concepts and procedures. We shared the common language of basic applied mathematics, but individual mathematical interests led to diverse perspectives on the problem. Between the three of us, computer science, probability and statistics, mechanical physics, perturbation

methods, partial differential equations, and more were all represented. When the problem wandered into one of the more specialized arenas, lucid communication was indispensable. We may have allowed ourselves to quibble over small issues of relative unimportance during Day 1, but by Day 2 we had grown trustful of the capabilities of each member and were able to spread out the massive workload among the three of us. By Day 2, we still had over 50 hours until the end of the contest, but we were much more aware of the incredible amount of work that still needed to be done. We skipped lunches and slept only a few hours each night. We worked like we were saving the world! We dreamt about the problem before running back to the computer lab with new ideas and schemes. We developed various numerical programs to match our mathematical analysis and determined the best manner in which to communicate our exciting findings.

Twelve hours of typing with no break on the last day produced our final 20-page paper. We later calculated that during the 96-hour contest, we worked together intensely on our problem for over 76 hours.

Our team received ranking of "Honorable Mention." We did not rank as highly as we had hoped, but none of us were disappointed. We went into the annual Mathematical Contest in Modeling anticipating a pleasurable competitive experience. We came out on the other side exhausted, famished and dazed, but also joyous and bonded by our passionate charge toward one common goal during that long and memorable weekend.

This article first appeared in "The Career Chronicle", Fall 2000, published by Career Services at the University of Colorado at Boulder.

Editor's Note:

The international contest in Modeling is sponsored by COMAP (The Consortium for Mathematics and its Application). The contest ran from 10 p.m. (mountain time) February 8, 2001 until 10 p.m. February 12, 2001 and drew entries from 496 teams around the world. Students from all science, math and engineering majors are encouraged to enter.

In 2001, the Applied Math Department entered two 3-person teams. One team consisted of Saverio Spagnolie, Tye Rattenbury, and Grant Macklem, all applied math majors, who created and analyzed models of spoked versus solid-disk bicycle wheels to determine what advantage each might give in a race. The report they

submitted was awarded an Honorable Mention. Applied Math's other team of Jim Barron (physics and math double major), Olivia Koski (physics major) and Jill Kamienski (computer science major) studied ways to evacuate Charleston, South Carolina as quickly as possible in the event of a hurricane, like 1999's Hurricane Floyd. Their report was judged Meritorious, within the top 16% of all submissions.

TIME OUT FOR A CO-OP AT THE SPACE CENTER

HOLLY LEWIS, APPM UNDERGRADUATE

I am a fifth-year senior at the University of Colorado with a double major in Aerospace Engineering and Applied Math. One day this summer, while I was commanding satellites at the Laboratory for Atmospheric and Space Physics (LASP, Boulder), I got a call from the Program Manager at Titan LinCom: he was looking to hire a student co-op to work on the simulation for the Crew Return Vehicle (CRV). The next day I was contacted by the CRV project lead with more details about the position. Unbeknownst to me, Dave Kalahar, my Aerospace Engineering advisor, had also recommended me to LinCom because I am a double major and have already finished my year-long senior projects class. Three days later I signed an acceptance form. Within three weeks, I had finished all the paperwork for CU's Time Out Program and moved to Houston, the Space Capitol of the world. I could not imagine passing up the opportunity to work on-site at Johnson Space Center and to collaborate with the astronauts, who will be training on our simulation.

I am here in Houston now, working on-site at Johnson Space Center (JSC) as a contracted employee from LinCom Corporation. So far, I am training to use their simulation tools and finishing off the paperwork of a new employee. After I complete the training, I will start my actual tasks, which will include: transferring the simulation from the LINUX operating system to a laptop and helping to interface the three phases of the simulation for a complete package. The simulation is designed to replicate the operations (sensors, controls, motion and user input) of the Crew Return Vehicle (CRV), which is the lifeboat for the International Space Station. The three phases of the simulation, which we will be integrating, are:

1) separation from the ISS, 2) navigation towards re-entry into the atmosphere, and 3) landing the CRV after the re-entry is complete. The simulation was set up so the astronauts could train for the operations of the CRV before they had to use it in a life-threatening situation. Hopefully, I will get to meet some of the astronauts while they are training on our simulation or maybe while they are testing the simulation.

The coolest thing so far, is the Saturn rocket that greets you at the entrance to JSC, it is one of only four Saturn rockets on display around the country. The building that I work in is amusing: all the furniture and decor are straight from the fifties and very institutionalized, the walls are all off white, there are metal gray filing cabinets and shelves in every room, the floors are all linoleum, and the lighting consists of huge fluorescent bulbs. I feel like I am in a 1950's movie about space exploration, but with twenty-first century tools! I am enjoying myself and I am sure that I will learn more than I will be able to process.

My co-op position is scheduled to run from Aug. 13, 2001 until Dec. 21, 2001. I will then return to Boulder, finish my remaining classes and graduate in December, 2002. I will also resume my work at LASP as a command controller/flight controller for the Mission Operations team. And then I will decide what my next step should be: graduate school immediately, or work for a few years before I continue my education. In either case, I will benefit immensely from my co-op.

Editor's Note:

Holly Lewis and her colleague Joshua Wells worked on a VIGRE sponsored research project with Professors Curry and Meiss during the summer and fall of 2000. This project, while less practiced than Holly's current experience, gave her a taste for the life of a researcher that we are sure will lead to a prominent career.

VIGRE

VIGRE (Vertical Integration in Research and Education) is an NSF-funded program that supports education and research. Professor Jim Meiss secured this grant in 1999, and he remains it's Principal Investigator. This grant has profoundly affected many in Applied Math.

For example, undergraduates have learned that doing research is considerably different than producing answers to homework exercises. This surprise has often been a pleasant one. So far, every undergraduate who was supported by VIGRE has gone on to graduate school after graduating. Mark Snyder, (B.S./M.S. 2001) who began graduate school at Columbia University this fall, says, "Working under the VIGRE grant taught me many valuable skills and changed my life plans. Before I started working under the VIGRE grant I wasn't even considering going to graduate school." Jeremy Horgan-Kobelski, a senior applied mathematics major, says, "I think it's very valuable for students to get a glimpse of what real academic research is like. I know that I've learned a lot more than just mathematics as part of the program." Tye Rattenbury (B.S. 2001) who began graduate work at Berkeley this fall, found that learning the process of doing research is often as important as the results. He says, "The fulfillment of research is in walking the path of discovery, and sharing that path with others through papers and conferences."

Graduate students, who traditionally have been on only the receiving side of the mentoring process, have discovered that being on the providing side is surprisingly difficult, and yet rewarding. John Carter was a VIGRE graduate trainee who will be receiving a Ph.D. this year (December 2001) and has moved to a faculty position at Seattle University. He mentored Saverio Spagnolie in a project in nonlinear waves, while simultaneously being mentored by Professor Harvey Segur on his thesis project. He says, "these experiences taught me much about communicating mathematics, and lead to my studying areas of mathematics that I would have not otherwise studied. Both of these skills will be very important in my future career as a university professor."

VIGRE has also shaken up post-doctoral education and research. Under the old structure, there were postdoctoral fellows, who worked on specific research projects with faculty advisors, and instructors, who learned about teaching by doing. VIGRE post-doctoral fellows have a foot in each of these camps, as well as in the camps of being a mentor. Gareth Roberts was a VIGRE postdoc for two years and is now a faculty member at College of the Holy Cross in Worcester, MA. One of his VIGRE activities was to supervise undergraduate Jeremy Horgan-Kobelski in a project on complex dynamics. Gareth notes that this work "provided me with valuable experience on being a research advisor. During my recent job search, several

employers expressed an interest in the mentoring work I was doing with Jeremy" thus, although Colorado's VIGRE program is just beginning, its effect is already large.

COPPER MOUNTAIN CONFERENCE SERIES

Professors Tom Manteuffel and Steve McCormick organize the Copper Mountain Conference in April of each year, alternating between Iterative Methods in even years and Multigrid Methods in odd years. This year the conference was on Multigrid Methods and was held on April 1-6. There were 120 participants and 70 lectures. A special feature of this conference is the support of students, which usually amounts to free lodging and registration, and travel assistance in some cases, for over 30 graduate students. The Student Paper Competition and substantial participation by the students in the lecture program and audience has been one of the hallmarks of this series. Further, student participation, for all of the reasons just given, has made the Copper Mountain conferences a central contributor to the fields of multigrid and iterative methods.

More information can be found at
<<http://amath.colorado.edu/faculty/copper/>>

AND THEY'RE OFF...OUR MAY 2001 GRADUATES

Paul Albano, (B.S.) is living in Golden, CO and working as a software engineer for Melco Embroidery, primarily handling graphics/user interface-programming. He spends most of his free time hiking, biking, and playing chess.

Pete Fox, (B.S.) heads into the computer science industry after graduation. He's accepted a job with SignalSoft Corp., a Boulder company that is the leading international applications developer of a wireless location service. He has worked as an intern for SignalSoft for a year, during which he learned much and is excited to join the development team full-time.

Before he began work, he traveled for 2 months. He spent one month visiting friends and family around Colorado before heading off to Milan, Italy

and Chamonix, France for a few weeks of mountaineering and wine tasting; not necessarily in that order.

Marla Fulks, (B.S.) returned to active duty in the Air Force.

Matt Mahoney, (B.S.) worked over the summer at NIST and to gain some more C++ programming experience before seeking a programming job. He doesn't want to program forever, though, and says he'd like to teach in high school, perhaps back in the Chicago area, where teachers are paid decently.

Tye Rattenbury, (B.S., 2001) spent the summer working as a research assistant at Athene Software in Boulder. Most of Tye's work consisted of coding various algorithms to implement different error measures. This fall, he started graduate school at Berkeley in Computer Science. Most likely he will study machine learning algorithm design and theory.

Jill Redfern, (B.S., 2001) is working in research and development at TRW. Graduate school may come in a few years, but right now she is just enjoying herself.

Mark Snyder, (B.S./M.S., 2001) and a few friends spent the end of the summer traveling through seven European countries in 31 days. After that he began an M.S. in financial engineering and a Ph.D. in operations research at Columbia University. He will have an NSF K-12 fellowship for his first three years and then he will be supported by research or teaching assistantships. His future research will be in applied probability. He is definitely looking forward to all of the wonderful entertainment and food New York has to offer.

...AND OUR GRADUATE STUDENTS

Ben Bergen, (M.S., 2001) worked at Vexcel Corp. this summer (<http://www.vexcel.com>). His work included trying to solve a problem that comes up in processing radar photographs of rivers. The goal is to figure out which way the river is traveling in very flat regions. In September he moved to Germany to study with Ulrich Ruede (a visiting researcher in Applied Math during 2000-2001) at the University of Erlangen. He will be studying Computational Engineering with a focus

on multigrid Methods. His goal is to do research on the computational side of multigrid, which will lead to a Ph.D.

Brian Bloechle, (Ph.D. 2001) completed his doctoral dissertation in Applied Mathematics in April of 2001.

Brian thoroughly enjoyed his time in the Department of Applied Mathematics and was not quite ready to leave. Therefore, he accepted an NSF VIGRE post-doctoral Fellowship from the department. After taking some time off to rediscover his wife and daughter, he joined the research group lead by Professors Tom Manteuffel and Steve McCormick. His first order of business is to tidy up his dissertation research on reactive transport in fractured porous media. He will then turn his attention to the application of numerical methods to partial differential equations arising in the geosciences and biological sciences. In addition to his research activities, Brian looks forward to teaching during the 2001-2002 academic year.

John Carter, (Ph.D., 2001) has accepted a tenure-track position at Seattle University. He will be teaching two courses a quarter and expects to have sufficient time for research. SU is a private school with about 2800 undergraduates. He will be mainly teaching the Calculus series, Complex Analysis, ODEs and PDEs. He will be collaborating with a group interested in Bose-Einstein condensation at the University of Washington. He will also be collaborating with a "focused research group" that will be studying mathematical aspects of water waves. He is excited about moving back to the Northwest. He'll be close to his family, friends, and the rain! Seattle has a great music scene, so he will be able to go to lots of concerts. Plus, the mountains are not too far away, so he (with Chris Higginson (M.S., 1999), among others) will be able to spend a lot of time on his bike.

Tim Chartier, (Ph.D., 2001); This summer Tim and his wife Tanya primarily concentrated on moving to Seattle. In September, Tim began a 3-year position as an Acting Assistant Professor at the University of Washington. The appointment in the Mathematics Department offers him opportunities to work with the Applied Mathematics Department and build ties to other departments on campus. He will be teaching undergraduate and graduate courses through the Mathematics Department and will work with students in Mathematics, Applied Mathematics,

and Computer Science. The department requests that he spends time during at least one of his summers at a national research lab and that he encourages and fosters connections to the abounding local industry that includes Boeing, Microsoft, and Cray. Finally, there are opportunities for him to work, through a recent grant on outreach, in the local schools with K-12 students and teachers.

Andrea Codd, (Ph.D., 2001). After escaping from America, she returned home to Australia and spent some time sitting on the beach. This was very enjoyable, but the harsh realities of life have now set in and she is trying to decide between a couple of different jobs.

Andrea has been offered a postdoctoral position at Australia National University – if she chooses to go there she can meet up with colleague Vanessa Robins, (Ph.D., 2000).

Ken Jarman, (Ph.D., 2000). In January he accepted a position at Battelle/Pacific Northwest National Lab in Richland, Washington in an Applied Math group. He spent part of his working hours supporting a behemoth continuum physics code called NWGrid/NWPhys, currently by implementing a FOSLS Maxwell's equations solver component. He is also involved in some proteomics, helping to develop algorithms for sequencing peptides from mass spectrometry data. A small amount of his work time is spent studying spatial heterogeneity of mass spectrometry samples (basically geostatistics), with a goal of smarter sampling strategies.

The work he loves best however is at home, where he tends to his daughter Anna (11 months).

Hugh MacMillan, (Ph.D., 2001) has a tough commute in Southern California. Though he's officially only a week into work as a Sloan postdoctoral fellowship at UC San Diego, he's discovered many routes between school and home conducive to both biking and jogging. Each entailing a broad view of the ocean; as well as the sounds, smells, and sights of the beach... including those of Black's Beach. Home is very interesting with his roommate Joe Polacco's (M.S., 1998) cat "Stinky" in competition with raccoons, opossum, skunks, and perhaps even a ferret of some sort, all of whom live in the now very overgrown acre of a nursery surrounding the house, "Casa de Bananas." The house was built in 1934 in Spanish style stucco, red tile roof, and

wood. "Bananas" is a reference to his landlady, horticulturist, ceramicist, and writer Theresa Yianilos, whose books are available online. Also, he has been spending some time with Prof. Mike Holst in Mathematics at UC San Diego as well as with two other postdocs, sinking their teeth into space-time finite elements and synapses.

COMINGS AND GOINGS

Deborah Alterman, (Ph.D. University of Michigan, 1999) was a VIGRE postdoc for two years. She has left academics for a position in industry and we wish her all the best.

Vani Cheruvu, (Ph.D., 2000, India Institute of Technology) was born and brought up in India. Most of her education took place in Hyderabad, the capital city of Andhra Pradesh. She did her masters (Applied Mathematics) at the University of Hyderabad and her Ph.D. at the Indian Institute of Technology Madras in Chennai, the capital city of Tamil Nadu. She received her doctoral degree in April 2000 and the title of her thesis was, "Applications of Wavelets to Certain Partial Differential Equations". After working as a Research Associate in the Dept. of Mathematics, I.I.T. Madras for a year, she joined the department in August 2001 to work with Professor Gregory Beylkin.

Jeff Heys, (Ph.D., 2001, CU Boulder) (pronounced 'haze') is a VIGRE post-doc in the Manteuffel/McCormick group. He finished his Ph.D. in Chemical Engineering here at CU last May and started as a post-doc in June. His interests are in modeling biological systems in which there is a mechanical coupling between a moving fluid and a tissue. Specifically, he's studied the interaction between the aqueous humor and iris in the eye because this coupling is important in some forms of glaucoma. Recently, he has begun modeling work on blood flow in large-diameter, compliant vessels. The long-range goal of this work is the optimization of the Fontan procedure, which is a surgery that enables blood circulation without the use of the left heart ventricle. He is excited to work with Tom and Steve because solving these problems tends to be very expensive computationally (if not impossible!) when using traditional methods.

When he is not doing research, Jeff enjoys mountain biking, climbing 13ers and 14ers, basketball, watching baseball, and reading. Of

course, he'll have to give up all those hobbies soon because his wife is pregnant with their first child, ETA, January 29, 2002.

Gareth Roberts (Ph.D. Boston University, 1999) has joined the Mathematics Department at the College of the Holy Cross in Worcester, MA. Gareth spent two years at CU as a VIGRE postdoc in the dynamical systems group. He enjoyed his stay here but is thrilled to be returning to New England. The t-shirt design this year (see page 11) is a result of his collaboration with undergraduate Jeremy Horgan-Kobelski.

ALUMNI NEWS

⇒ 1959

Charles J. Pfeifer, B.S., in Applied Mathematics and a minor in Engineering Physics. Since the Applied math major began to be offered only in 1957 or 1958, I believe that I was the first graduate in Applied Mathematics at CU since the other 3 or 4 in my class did not finish until June 1959. Incidentally, two of us from that first class (myself and Paul Penman who is deceased) spent our career at the same place, the Bettis Atomic Power Laboratory in Pittsburgh, PA.

⇒ 1964

Richard F. Sincovec, B.S., and his wife of 33 years, Deanna, moved to Lincoln, Nebraska, August, 2000, where he will be Chair of the Department of Computer Science and Engineering and the Paul and Betty Henson College Professor of Communication and Information Sciences in the College of Engineering and Technology. Dr. Sincovec has held prior positions as Director of the Computer Science Division at The University of Texas at San Antonio, of the Computer Science and Mathematics Division at Oak Ridge National Laboratory, Director of the Research Institute for Advanced Computer Science (RIACS), Chairman of the Computer Science Department at the University of Colorado at Colorado Springs, Manager of Numerical Analysis at Boeing Computer Services Company, Professor of Computer Science and Mathematics at Kansas State University, and Senior Research Mathematician at Exxon Production Research.

⇒ 1966

Archie G. Gibson, Ph.D., is currently a Professor of Mathematics at the University of New Mexico. He teaches mainly Applied Mathematics courses

and does research in N-Body Scattering Theory. He has been married to Louise since 1961, and they have two children, Gavin age 30, and Darin age 28.

⇒ 1971

Matthew J. Culley, B.S., is a senior systems analyst at Boeing and has worked on both military and civilian projects for the last 22 years.

Diane Wagener, B.S., is currently Director of the Division of Health Promotion Statistics of the National Center for Health Statistics, Centers for Disease Control and Prevention. Her Division advises the US Department of Health and Human Services on statistics regarding health promotion and disease prevention. She previously worked as an Associate Professor in the School of Medicine at the University of Pittsburgh and a Senior Staff Officer of the National Academy of Sciences.

⇒ 1972

Diego Pareja-Heredia, M.S., I lived in the Quonsets (!) while pursuing my graduate degree at CU. I then returned to Columbia to work at the Universidad del Quindio, Armenia. Colombia.

My wife Neira and I have two girls, Sandra Natalia (a physician), Leslie Sophia (a gerontologist) and a son Mauricio (now an electronics engineer).

⇒ 1991

Adam Bechtel, B.S., and his wife Karyn are living in San Jose. Adam has received his CCIE (Cisco Certified Internetwork Expert) and works as a network architect for CAT Technology. CAT Technology is a leading Internet Architecture and Management company, specializing in Sun Microsystems, Cisco Systems, Oracle, and Veritas.

⇒ 1992

Rachel F. Ames, M.S., after ten years at NCAR as a software engineer, repetitive strain injury in her hands forced her to change careers. She is now a real estate agent at Fowler Real Estate/Better Homes and Gardens in Boulder.

⇒ 1995

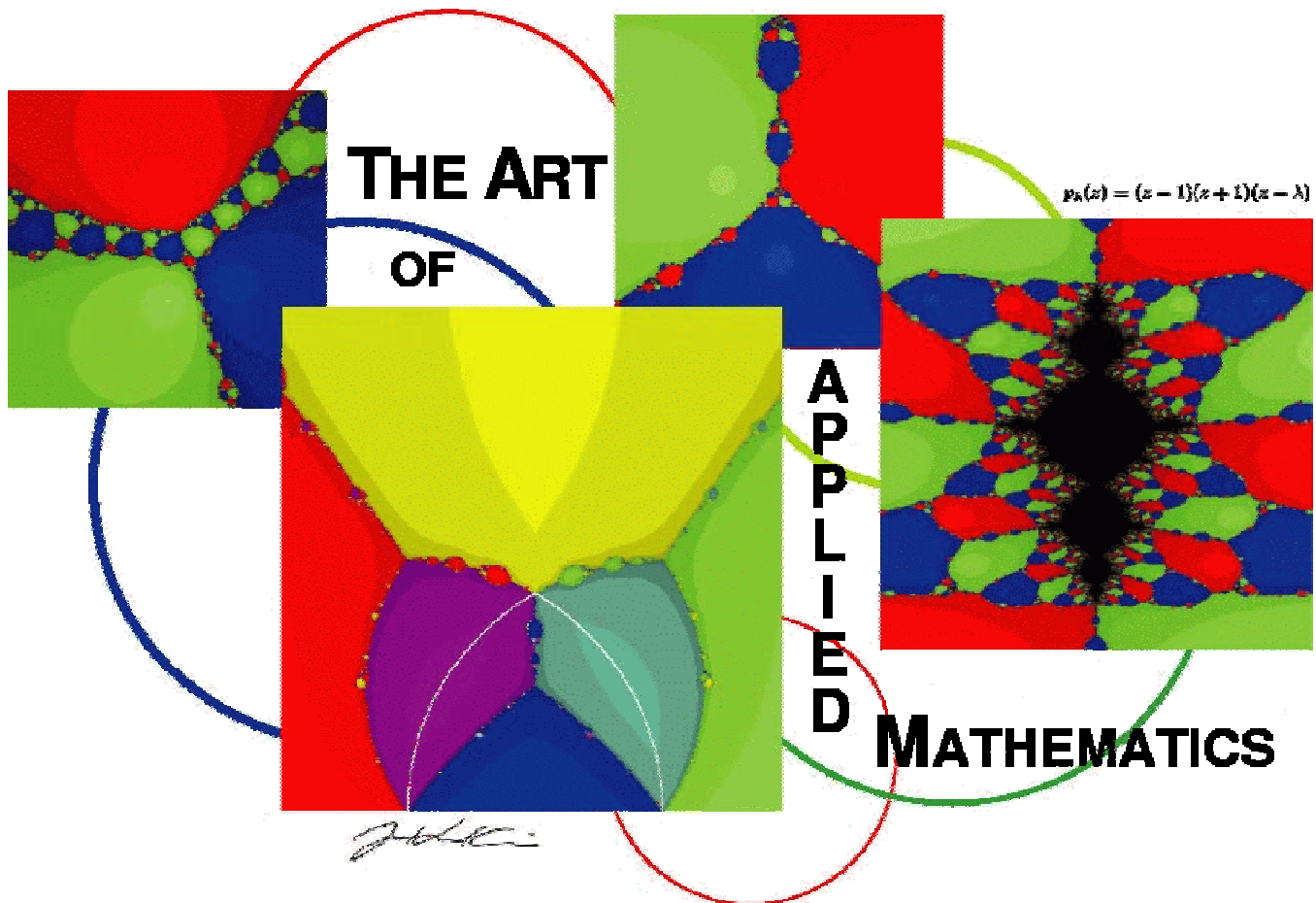
Joseph S. Iwanski, M.S., and his wife Laura have a baby daughter, Christina Elizabeth, born 14 September 1999. He teaches computer science, technology, and mathematics at the Dwight-Englewood School in Englewood, NJ.

⇒ 1997

Bradley Oedzes, B.S., is a pilot for Northwest Airlines.

THE APPLIED MATH T-SHIRT FOR 2001-2002

This is the picture that appears on the back of the 2001/2002 Applied Math T-shirt. To order the T-shirt, specify your size (M, L, or XL) and send \$15 (postage included) to Janis Kaufman, Dept. of Applied Mathematics, 526 UCB, University of Colorado, Boulder, CO 80309. For an explanation of the picture, see <http://amath.colorado.edu/department/tshirt/>.



ALUMNI INFORMATION

Please use this sheet to update your contact information or tell us what you've been up to. If you would prefer to fill it out on-line, the address is <http://amath.colorado.edu/alumni/survey>. Or, just send us an email message, to appm_info@colorado.edu. We look forward to hearing from you !

Please return to:

Janis Kaufman
Dept. of Applied Mathematics
526 UCB
University of Colorado
Boulder, CO 80309-0526

Name: _____

Address: _____

Phone: _____ Email: _____

Year of graduation and degree received: _____

Information you would like to share in the next newsletter: