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# APPLIED MATHEMATICS NEWSLETTER

## UNIVERSITY OF COLORADO AT BOULDER

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SUMMER 2000

VOLUME 3, #1

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### FROM THE EDITOR

This is the second edition of the Applied Mathematics newsletter; we hope that you find it of interest. Primarily, it is meant for your enjoyment and to keep you informed with what has been happening in the department; however, we also hope that it will help our alumni keep in touch with one another as well as with us.

If you haven't already, please take a little time to fill out the survey that you will find on our web site: <http://amath.colorado.edu/appm/alumni>. This will help us assess how useful you found your training, so that we can make the applied math degree more relevant for training today's students for tomorrow's world. Additionally, you can use this web site to update your postal and/or e-mail addresses.

We would also like to encourage you to write us and let us know what you are up to and how life interacts with your mathematics. If you wish your contribution to be included in the next issue, let us know. With the exception of your name and graduation year, we will not publish the information that you give in the survey unless you explicitly give your approval.

*Jim Meiss, the editor-by-default*  
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### FROM THE CHAIR

The Department of Applied Mathematics continues its outstanding efforts in undergraduate, graduate and postdoctoral education as well as research and scholarly work. The \$2.3m NSF grant supporting Vertical Integration in Research and Education (VIGRE) via tetrahedral groups has been solidified with the appointment of two new postdoctoral instructors: Drs. Natasha Flyer and Panayotis Panayotaros. By summer's end, VIGRE PI James Meiss expects to have appointed eight VIGRE graduate assistants

and in addition VIGRE will be supporting at least eight undergraduates.

We are delighted to note that the graduate committee has recruited an impressive new class of approximately 20 graduate students including a new chancellor's graduate fellow: Scott MacLachlan.

Similarly, the CCHE excellence grant, awarded last year, has allowed the Department to further many of its goals. It helps extend the vertical integration efforts of the unit in the direction of technology throughout the curriculum, allows the purchase of seriously needed computing equipment and has let the unit begin The Summer Institute, which is an outreach effort for high school teachers in probability and statistics and calculus.

The teaching activities of the unit continue at an extremely high level. In 1999-2000 the Department taught 3529 students, which translates to approximately 13,000 student credit hours. Department faculty continue their research and service activities at an impressive level. The faculty wrote 22 papers, gave 44 invited lectures at conferences and universities worldwide and serve on 12 editorial boards. Important to the unit are its 38 affiliated faculty, who can direct MS and Ph.D. theses with a co-advisor from the Department.

We are pleased to note the following:

Professor Tom Manteuffel has been elected President of the Society of Industrial and Applied Mathematics (SIAM). Congratulations Tom!

Dr. Jem Corcoran has been hired as an Assistant Professor beginning fall semester 2000. Jem is an expert in applied probability/stochastic processes. We are looking forward to Jem's arrival!

Professor James Curry has developed a significant collaboration with Sun Microsystems to begin a teaching and training effort in Java programming and the Solaris operating system. An additional

goal is to allow CU students to obtain Sun certification as part of its curricula. Thank you Jim!

Professor Harvey Segur will take over as Chair and Dr. Anne Dougherty as Associate Chair of the Department on July 1.

Finally, it has been my pleasure to work as Director/Chair of the Program/Department of Applied Mathematics during the past eleven years. I thank Associate Chair James Curry for an outstanding job during this period. I wish the new Chair and Associate Chair of the Department great success.

*Mark Ablowitz, Chair*  
*mark.ablowitz@colorado.edu*

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## **PARTNERSHIP WITH SUN MICROSYSTEMS**

**A**ppplied Mathematics and Sun Microsystems are developing a program to allow applied mathematics and computer science students at CU to become Sun Microsystems Certified Instructors. The CU students, both undergraduate and graduate, will be intensively trained for several weeks at Sun's Broomfield facility in computer language programming, primarily JAVA. The students will then take a certification exam, which, if they pass, will allow them to teach Sun courses using Sun educational materials.

"This is a win-win situation for CU and for Sun Microsystems," said Jim Curry, who spearheaded the effort to form the partnership. "We will have access to the tremendous educational facility created by Sun in Broomfield, which is interested in developing new outlets for its educational materials. And Sun employees will have a chance to work with and get to know some of our extremely talented students."

Curry first approached the Sun Microsystems Broomfield facility in 1998, to work with Sun administrators to set up internships for several undergraduates. "But I felt we should try to incorporate a closer, more long-term partnership that would allow our undergraduates and graduate students to obtain certification in computer languages," he said.

The CU/Sun curriculum focuses primarily on JAVA, an object-oriented programming language developed by Sun. Unlike page-description computer languages like HTML, programming languages like JAVA describe a process for generating a result. "JAVA is one of the hottest and most exciting programming languages right now," said Curry. JAVA can be used on a wide variety of computer platforms and was designed to make it easier to write device-independent software.

The department offered an intensive course on JAVA 1 and JAVA 2 during the "Maymester," which ran from May 15 to June 2. The department also will offer courses in JAVA 2 during two contiguous summer school sessions in 2000. And if things go well, we plan to include two JAVA courses as part of the applied math curriculum beginning with the fall 2000 semester. "Since we are a mathematical sciences department, we plan to incorporate the use of mathematical algorithms in these courses," Curry said.

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## **A BLEND OF JAVA WITH MATHEMATICS**

**F**or the past several months, Dr. Curry, John Carter, Eric Wright, Travis Austin and I have been preparing for the Java programming language courses to be offered during the Maymester and Summer sessions. To obtain qualifications to teach such a course, I attended a week of intensive training at the Sun headquarters in Broomfield. The students that surrounded me in the classroom came from the corporate sector. As I asked questions regarding the Tech Center and small computer firms in Boulder, they asked questions about doctoral studies in mathematics. While the week was intensive, covering a semester's worth of material, I've enjoyed the blend of hands-on programming and lecture and was surprised at my retention level. I found myself often reflecting on how such a blend could be used in studies in Numerical Analysis, my field of research. I also felt a degree of pride as I remembered how our department uses its own computer lab to aid and enhance learning. In the months that followed, I studied Java in detail and passed the Sun Certified Java Programmer exam. My mind raced with ideas of Java applications to code. Some applications relate to my research. Several applets correspond to needs of my wife, Tanya, who is a middle school theatre teacher.

The breadth of ideas reflects the scope of Java to tackle real-world applications. The broad scope of Java excited me during my week in Broomfield and through the hours that I sat in my study plowing through Java principles. I expect this excitement to be realized as I create these applications in the future. Yet, one step at a time; for now, preparations continue to pass this excitement on to students during Maymester and Summer session.

Tim Chartier  
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## APPLIED MATH TEAM TAKES TOP HONORS IN MODELING CONTEST

**T**his past February, six students, with support from Applied Math and the undergraduate SIAM chapter, participated in the 4-day Mathematical Contest in Modeling sponsored by The Consortium for Mathematics and its Applications (COMAP) see <http://www.comap.com>. This year's contest drew 495 entries from around the world, with 282 coming from US teams and 213 from other countries. Each team of three had exactly 89 hours to craft their solution to one of three open-ended problems: Problem A (Air Traffic Control), Problem B (Radio Channel Assignments) and the Interdisciplinary problem (Elephants: When is Enough, Enough?). The paper submitted by the team consisting of **Bill Woessner** (Applied Math), Rich Younger (Engineering Physics) and Martin Linck (Chemical Engineering) was designated as one of the Outstanding Papers for Problem A. In addition, their paper was selected as the Institute for Operations Research and the Management Sciences (INFORMS) winner. INFORMS is a professional organization similar to SIAM. Since the advent of the contest in 1984, this is only the second time that a CU-Boulder team has achieved an Outstanding designation. The last time was in 1992.

In their problem, Bill, Rich and Martin were to evaluate the feasibility of using computer software to assist in air traffic control. Their approach was to apply various algorithms of increasing complexity and cleverness to a massive simulation of Denver International Airport (DIA). The experiments showed that no one algorithm performed better than the others did. They concluded that this problem is a classic example of NP-completeness, and that computer software

cannot effectively be used for air traffic control. Other aspects of the paper discussed the minimum safe distances between planes and using software for keeping aircraft in holding patterns. You can read the paper at <http://csel.cs.colorado.edu/~woessner/UMAP.html>. It will also be published in the October issue of the UMAP Journal.

The paper submitted by the team consisting of Jim Barron, Cristy Shannon and John Herman, all physics majors, was designated as Honorable Mention for the Interdisciplinary Problem. Only 26% of the papers received this designation. This is very impressive given that all three of these students are just sophomores and juniors. Just think what they might be able to do next year!!

Bengt Fornberg and Anne Dougherty were the faculty advisors. In addition, Kelly Cline, a graduate student in Astrophysical and Planetary Sciences, did a fantastic job helping to coach both teams. As a former contest participant, who also received an Outstanding designation in 1998, he was in a unique position to share his insights and experiences.

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## NEW GRADS TAKE ON WORLD

**T**his May, Applied Math had 9 graduating seniors. Of these, 5 are going on to graduate school. This is surely a record for us! We are extremely proud of all of our graduates and happy that so many of them have decided to continue their education.

**Willie Heuett** – Willie will attend the University of Washington in Seattle with a VIGRE fellowship in their Applied Math Department. He will work jointly with the Applied Math and the Statistics departments and will likely end up doing research in stochastic processes.

**Jonathan Peeters** – Jonathan will study at MIT, probably in computational mathematics. His work will likely include research in numerical analysis and asymptotics. It goes without saying that he is extremely excited to study at such a highly regarded institution!

**Anna Segurson** – Anna received a GAAN Fellowship in the Computer Science Department at the University of Arizona. She will have a TA for the first year and then a research assistantship (RA) for two more years. She is most interested in

the theory of computation (e.g. decidability and NP-completeness) and feels her applied math degree has given her an excellent background in preparation for her graduate work. She's also looking forward to living in sunny Tucson!

**Elaine Spiller** – Elaine will attend the Department of Applied Mathematics at Northwestern University. She is looking forward to continuing her research in physical mathematics.

**Bill Woessner** – Bill will work towards a Ph.D. in the Computer Science Department of the University of Maryland. He is particularly interested in numerical analysis, computational science and large-scale computation. Whatever he does will involve mathematical modeling – putting his applied math degree to good use!

We also wish the best to the rest of our graduates.

**Tony Moscoso** received an American Economic Association (AEA) Minority Scholarship to participate in the AEA Summer Program at the University of Texas at Austin. Before and after this summer program, he will be working at the Cancer Research Center in Denver. His future plans include graduate school in economics.

**Megan Satterlee** plans to travel before seeking a permanent position. Sounds like fun!

**Jasmit Singh**, a double major with Computer Science, is working as a Software Engineer at Visual Numerics in Boulder.

**Rebecca Picotte Wilson** accepted a job with Towers Perrin, an actuarial/human resources consulting firm. Her position is in Houston, where she will work on pension plans in the retirement practice.

*Anne Dougherty, Associate Chair Designate  
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## POSTDOCTORAL FELLOWSHIP AT NIST

**I** am currently a National Research Council postdoc in the Mathematical and Computational Sciences Division (MCSD) of the National Institute of Standards and Technology (NIST). I'm almost half way through this two-year position and it's taken me much of

that time to get used to the proliferation of acronyms here in the government! Under the Department of Commerce, NIST is charged with developing standards and technology to enhance American commerce. These efforts frequently result in fascinating mathematical problems of a very applied nature. Within NIST, the primary function of MCSD is to provide mathematical and computational consulting services to the other laboratories. For example, we are currently constructing a digital handbook of mathematical functions. This is an updated version of the classic, Abramowitz and Stegun, complete with hyperlinks to standardized computational routines and volumes of additional material.

Here in Boulder, I am one of five research mathematicians, though one person has been on sabbatical at Courant this year. Though the group in Boulder is small, the division has a much larger staff on the main campus in Gaithersburg, MD. As a whole the members of the division have a diverse set of backgrounds. There are three of us that specialize in nonlinear dynamics, although in Boulder the main emphasis is on computation, especially fast algorithms.

The laboratory environment is quite different than the university. The most obvious difference is the absence of teaching duties, but the research culture is also different. There is palpable feeling that one must study problems that are commensurate with the organizations primary mission. This means finding applications where your work can make a significant impact in an applied scientific or engineering field. This may be more or less of a challenge depending on your field of study, but invariably the problems here are "messy"; stochastic effects, complicated geometries and nonlinearities are the rule, not the exception. Overall the work is highly inter-disciplinary requiring some familiarity of the vocabularies used in different research communities.

For the past eight months I've worked on a project that has allowed me to expand my background in nonlinear dynamics; moving away from my thesis topic, but still studying coupled chaotic systems. In the future I plan to stray yet farther from my thesis area and study a computational problem. A nice thing about the NRC fellowship here at NIST is the freedom it permits in choosing your research direction; you are definitely not constrained to work on a single problem for the duration of the position. The fellowship also includes a stipend for professional development and conference travel. My stipend has taken me to a conference in

Texas, and this summer it will take me first to England to attend Dynamics Days and then to Italy to participate in a workshop on chaotic synchronization.

*David Sterling, Research Assoc.  
Ph.D. 1999  
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## A TALE OF TWO CULTURES

I could report on my visits to cancer and psychiatric institutes in both England and Italy during my 1998-1999 sabbatical, which is where I was in search of interesting probability and statistics problems in genetics. Instead, I have decided to relate some lighter contrasting experiences that might best be placed under the heading of "Sociology".

Our London flat was located on Southampton Row about two and a half blocks from the British Museum. Britain is very good about making theatre and museum exhibits accessible to the blind and partially sighted. In certain London theatres on specified nights one can find audio-described performances of both classical and contemporary plays. However, it is the museum touch-tours and, in particular, the ones in the British Museum that I want to briefly describe.

There are three exhibits of sculpture, one Roman, one Greek, and one Egyptian, which are available for a tactile inspection. In this land of queues and pomp and circumstance you would expect, and you would be correct in your expectations, that things would be well organized. Items that could be touched were clearly identified. There were notes in Braille and an accompanying audio description on tape. In my mind's eye I can still see clearly the marble Parthenon friezes with what looked like their layering of carvings of mounted horsemen, the one seeming to appear from behind the other, giving a three-dimensional perspective to the scene. Touching a snake is not my idea of fun but when that snake is a carving of the uraeus or cobra that was positioned as a jewel on the forehead of the statues of the monarchs of ancient Egypt, that made the experience a little more pleasant. And, yes, I did notice that the statue of Venus had no arms.

Now it is spring semester and we have a change of location. Our apartment in Italy was in the small town of Signa just west of Florence on the Arno River. The Signa train station was a five-minute

walk from our front door, from which a fifteen-minute train ride put us in the center of Florence. On those days, when we went into the city early, we had the company of lots of Italian teenagers on the train all heading into Florence for secondary school. Signa was so small that there was no high school of any sort in the town.

To continue my story of contrasting experiences, one spring morning my wife, Valerie, who teaches Italian here at the University of Colorado, and I headed off to the Bargello sculpture museum in Florence. As she usually does in these situations, Valerie asked the people on duty if there were things I could touch. The reply was the kind of generous response that we have come to expect in Italy. I could touch all of the pieces. We moved quickly past the less well known works heading directly for Donatello's "David", the first of the two most famous pieces in the Bargello. There the young David stood sword in hand, with the severed head of Goliath at his feet, and his booted foot, with the toe cut away from the boot, resting on the torso of his slain enemy. Then it was off to Michelangelo's "Bacchus" with Bacchus's cloven-hoofed satyr sidekick and Bacchus both there for my inspection. These were not copies. This was the original Michelangelo. This was the original Donatello. Taking it to excess, I reveled in the experience as if I was Bacchus himself.

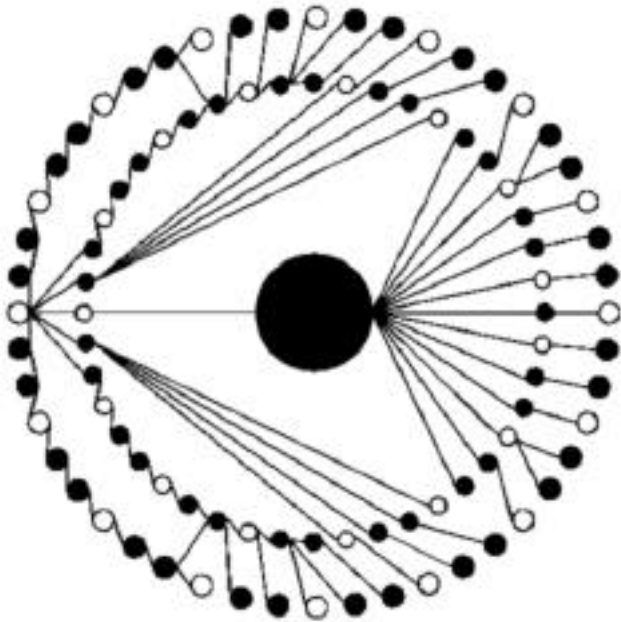
I reveled until one of the attendants asked Valerie to ask me not to touch the sculptures anymore. The museum's "Vice Direttore" had turned up on the scene and there was apparently no general policy stating that blind and partially sighted individuals could have tactile access to the works. The permission was given to me by the people on duty because it was Italy and Italians have a way of ignoring rules that they feel make little sense. When the administration turned up, the situation was reversed.

And there you have my tale of two cultures, the one that makes specific rules and then, for the most part, plays by those rules; the other that chooses to adjust the rules when they seem not to fit the situation.

*John Williamson, Professor  
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**THE APPLIED MATH T-SHIRT FOR  
1999-2000**



This is the picture that appears on the back of the 1999/2000 Applied Math T-shirt. To order the T-shirt, specify your size (S, M, L, or XL) and send \$15 (including postage) to Rebecca Thomas, University of Colorado, Campus Box 526, Boulder, CO 80309. For an explanation of the picture see: <http://amath.colorado.edu/appm/other/Tshirt/2000/>

## A VISIT TO OXFORD

I spent three weeks last summer visiting the Oxford University Computing Laboratory, a de facto computer science department. My former Ph.D. advisor, Nick Trefethen, leads this group and suggested that I visit so that we could work on a book in progress about Schwarz-Christoffel conformal mapping. The Lab's numerical analysis group is large and active, with seven full-time academic staff, 11 postdocs, and 16 doctoral students. They were friendly and interesting to talk to. Gil Strang of MIT, current president of SIAM, was visiting too, and I got to have a few lunches with him at Balliol and hear him deliver a research seminar. I also gave a seminar, on recent work with staggered time integrators. I stayed at St. John's College, one of the wealthiest institutions in Britain, and got an insider's tour of all the architectural treasures that are falling apart. I did sneak off to Stratford for a day to see a hilarious production of *A Midsummer Night's Dream* at the Royal Shakespeare Theatre. (A banjo? In Shakespeare??) Following my stay, I

traveled to Dundee, Scotland, for the biennial numerical analysis conference held at the university there. I gave another talk (on numerical methods for nonlinear waves) and caught up with and met many colleagues from Britain and Europe. This was a very valuable June!

*Toby Driscoll, Instructor*  
*tad@colorado.edu*

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## COPPER MOUNTAIN CONFERENCE SERIES

We organize the Copper Mountain Conference in April of each year, alternating between Iterative Methods in even years and Multigrid Methods in odd years. These conferences typically have up to 200 participants and 100 lectures. A special feature is the support of students, which usually amounts to free lodging and registration, and travel assistance in some cases, for up to 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, and it has helped to make these conferences central contributors to the field of multigrid and iterative methods.

The conference was held this year April 3-7. There were special sessions on the topics of Applications, Nonlinear Systems, Iterative Eigensolvers, and Preconditioning Strategies.

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

*Steve McCormick and Tom Manteuffel*  
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*tmanteuf@colorado.edu*

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## NEWS AND HONORS

✿ *A New Chair*  
After a tenure of 11 years, **Mark Ablowitz** is turning over the reins of the Department to **Harvey Segur**. Mark's research program, which hasn't measurably suffered in the past 11 years, is bound to become even more active as a result. The Department is extremely pleased that Harvey agreed to become Chair. **Jim Curry** has also retired from being Associate Chair, a position he

has held since the dawning of the idea for a new Department in 1988. He will be on leave next year at Sun Microsystems in their educational program. **Anne Dougherty** will become Associate Chair in his place. She has been training for this position by being the faculty advisor for the SIAM undergraduate club, and being heavily involved in undergraduate affairs.

✿ *Applied Math major rides the "Vomit Comet"*

**Jillian Redfern**, a junior in Applied Mathematics, took part in a flight on the "Vomit Comet", as part of a team from LASP. "Vomit Comet" is the nickname for a KC-135 aircraft used for microgravity research and as a zero-gravity-training environment. (It was also used to film the weightless scenes in the Ron Howard movie Apollo 13.) The craft describes a high-altitude parabola providing about 25 seconds of near-zero gravity, preceded and followed by similar periods of up to 2G acceleration. The maneuver may be repeated up to 40 times, over a flight of 2 hours. Pictures of the flight can be seen at <http://amath.colorado.edu/kudos>.

✿ *Honors*

CU's top scorers on last December's Putnam Exam were Aleksandr Arustamyan (first place) and Dima Sinapova (second place). Four students were tied for third: Tye Rattenbury, Kimberly Brown, Jason Warfield, and Seth Wilson. All of them will receive prizes from the Mathematics Department. Congratulations to **Tye Rattenbury**, a sophomore in Applied Math!

**Saverio Spagnolie**, a sophomore in Applied Mathematics, is one of three CU winners of a Goldwater scholarship. Gadalia Weinberg (Mathematics) and Katherine Francis (MCDB) are also winners. Each student gets a \$7500 scholarship from the Goldwater foundation.

**Edith Hand**, a junior in Applied Mathematics, has been inducted into the Tau Beta Pi national engineering honor society. Congratulations!

✿ *Summer Research*

**Deborah Hinck**, a senior in Applied Mathematics, has been offered a summer internship with Microsoft in Seattle, Washington. We hope that Microsoft is still around when she gets there.

**Dani Bundy** (MS 2000), an Applied Mathematics graduate student, is participating in the NSF Summer Institute in Japan. She will be doing computer simulation research with a liquid crystal

group (led by Dr. Hideo Takezoe) at the Tokyo Institute of Technology from June-August 2000.

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## COMINGS AND GOINGS

**Toby Driscoll** has accepted an assistant professor position at the University of Delaware. Toby has been an NSF postdoctoral fellow and instructor for the Department for the past four years. His students and colleagues will greatly miss him, and wish him continued success in his career.

**Gareth Roberts** (Ph.D. Boston University) and **Deborah Alterman** (Ph.D. University of Michigan) joined the department last fall as VIGRE postdoctoral fellows. Gareth's research is in dynamical systems—his Ph.D. thesis concerned the existence and stability of central configurations for the n-body problem. Deborah is working in the nonlinear waves tetrahedron, and her research is on geometric optics for short pulses.

**Michelle Ghrist** (Ph.D. 2000) has accepted a tenure-track assistant professor of mathematics position at Belmont University in Nashville, Tennessee. Belmont is a Baptist school of about 3000 students and offers professional and liberal arts education. **Rich Ghrist** (MS 2000) has accepted a position at Franklin Road Academy in Nashville. He will be teaching high school physics and mathematics at this exclusive private school. Their son Aaron Ghrist, who was born May 9, 1999, weighing 8 lbs., 15 oz, will accompany the couple. He is a very happy, observant child.

Applied Mathematics is pleased to welcome Assistant Professor **Jem Corcoran** to the Department. For the past two years, Jem has held an equivalent position in the Statistics Department at the University of Georgia. Jem received her undergraduate degree in math at CSU in Fort Collins, her MS in math at Purdue and her Ph.D. in statistics at CSU. She has long-standing ties to Colorado and is looking forward to returning to the state.

Jem's research interests are in the areas of applied stochastic processes, applied probability and statistical physics. The main focus of her research has been on a specific type of Markov chain Monte Carlo method that results in a perfect simulation of the process being studied. This type of simulation has widespread application in many areas as researchers search for better and more

efficient ways to simulate processes, which are difficult or impossible to handle analytically.

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## ALUMNI NEWS

❁ 1961

J. Thomas Bellows, Ph.D. and his wife, Jill Dudley Bellows, live in Los Angeles, where he works for the Department of Children and Family Services, Los Angeles County as a Children's Social Worker evaluating family situations that have been reported as possibly abusive to children. He also does counseling for domestically violent men and women and their families and consulting for families with developmental disabilities. They have two sons, John age 28 and Colin age 25.

❁ 1962

Richard Korts owns his own business, which specializes in bringing computer technology solutions to businesses. He is married (Janet, 22 years), and has three children, Joey, age 31, Steven, age 21 and Karen, age 19.

❁ 1968

Jerry Pitter works for Lockheed Martin (GES) as a Software System Engineer.

William Long is a Principal Research Scientist for MIT.

❁ 1969

John H. Schuenemeyer retired in 1997 as a professor of statistics at the University of Delaware. His current position is a research mathematical statistician for the US Geological Survey, developing methodology for energy resource assessments.

❁ 1970

Daryl Ronald Myers, in 1996, married Barbara Bowker of Newport, RI, after his first wife of 8 years, Donna (Olsen) of Buffalo NY, passed away in 1995. He has spent the last 25 years in the field of optical and solar radiometry, measurements, instrumentation, and data analysis. He started out at the Smithsonian Institution Radiation Biology Laboratory in 1974, after four years in the U.S. Army as a Russian Linguist during the cold war. Since 1978, He has been at NREL, formerly the Solar Energy Research Institute (SERI). His work, in support of renewable energy, has given him the opportunity to work with colleagues around the world, including Europe, the Far East, the Arab

world, the former eastern block countries, and Russia. They work with the National Institute of Standards and Technology and National Aeronautics and Space Administration to evaluate the accuracy and uncertainty associated with radiometric measurements in the laboratory, in the field, and from space. He is editor of the Council for Optical Radiation Measurements (CORM) newsletter, Optical Radiation News.

❁ 1972

Ray Watkins is married with two boys. His oldest son received a BS in Math from the University of Arizona and teaches high school math, and his youngest received a BA in Spanish from Northern Arizona University. His wife is a professor of Computer Science.

Lawrence G. McMillan is the president of McMillan Analysis Corp.

❁ 1973

Lee Walko has worked twenty years for Dow Chemical in Texas and Michigan. Currently, he is a global R&D project manager assisting teams in evaluating new chemistries, technology and applications.

❁ 1977

Rico Argentati is Technical Manager for Lucent Technologies, (Bell Labs)

Glen A. Brink owns a successful direct mail marketing company.

❁ 1980

Richard Strauch works for Fair Isaac as a Project Manager.

❁ 1981

Frederic P. Wolff is Senior Business Manager at Allied Signal Aerospace Equipment Systems in Torrance, California.

Randall R. Pratt has completed 15 years with IBM, five of those in Vermont. His family of 5 (3 boys, 2 girls) is growing up quickly. They range from 18 - 5, all very different.

❁ 1983

Ken Knowles is a Professional Research Assistant at the National Snow & Ice Data Center.

❁ 1984

Linda Faye Rosen has held multidisciplinary positions with the Federal Government, including

assignments in electrical design, on-site construction supervision and construction contract administration.

Bonnie Burkhardt works for Coleman Research Corp. as a Senior Engineer.

✿ 1985

Tracey Benson, for the past 7 years, has been employed by Microsoft, in Redmond, WA, as a software test manager. During that time he has tested and managed software testers working on the Windows NT, Microsoft Exchange, and Expedia product lines. In his spare time, he enjoys travelling. He spent part of this past summer travelling in Europe and Alaska, and he's traveled throughout the US, as well as Canada and Mexico. He's looking forward to an upcoming trip to the Caribbean, and perhaps a return to Europe in the not too distant future. When he's not travelling he enjoys gardening, reading, and horseback riding.

Craig Stertz is a Mathematics Instructor at Itasca Community College.

✿ 1987

Cynthia McCarthy Perry works at US West as a Senior Market Research Manager.

✿ 1995

Erik Bollt is an assistant professor at the US Naval Academy, Mathematics Department. His wife Liz and he have two beautiful baby boys: Keith Levi Bollt (age 2) and Scott Alexander Bollt (age 1).

David Sholl is an assistant professor at Carnegie Mellon University.

✿ 1997

David Lewis works for Roadmap Technologies as a Software Engineer. He will be attending the University of Maine next fall for a masters program in Natural Resource and Environmental Economics.

Julie Bartsch works for TRAC-NA as a Staff Scientist and Office Manager.

Jim Arnow is a Quality Assurance Test Programmer at Research Systems Inc., in Boulder. He is currently working on their data visualization and application development product, IDL. He would like to announce his recent engagement to Patti Abbott.

✿ 1998

Greggory Bachmeyer is an associate software engineer at Lockheed Martin.

Chris Falvey works at National Semiconductor as a design engineer.

Brandi McCarty is a research associate at NOAA's Environmental Technology Laboratory.

Youn-Hee Lim is a data analyst for Educational Testing Service.

Joe Polacco teaches math and computer science at St. Paul's School.

Lora Billings spent 1999 as a visiting professor at the University of Delaware. She is currently a research scientist at the Naval Research Laboratory.

Laurie Heyer, now a research associate at the Center for Computational and Experimental Genomics at the University of Southern California, accepted a position as Assistant Professor at Davidson College, NC and will begin teaching this fall.

Bernard Deconinck has a VIGRE postdoctoral fellowship at the University of Washington. He will become an assistant professor in the mathematics department at Colorado State University in Fort Collins in the fall of 2001.

## ALUMNI SURVEY

We are in the process of looking at our curriculum and thinking about ways it can be improved. We are also trying to assess how useful your applied math degree has been to you. To determine how to make the applied math degree more relevant to today's industrial and business needs, we need your help.

We would truly appreciate it if you would tear off, fill out and return this survey to us at the following address:

Rebecca Thomas  
University of Colorado  
Department of Applied Mathematics  
Campus Box 526  
Boulder, CO 80309-0526

If you would prefer to fill it out on-line, the address is <http://amath.colorado.edu/alumni/survey>. Alternatively, call us at 303-492-4668 if you would like to discuss these questions with us directly. Thanks for your reply!

Anne Dougherty ([Anne.Dougherty@Colorado.EDU](mailto:Anne.Dougherty@Colorado.EDU))

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Year of graduation and degree received: \_\_\_\_\_

email: \_\_\_\_\_ Phone: \_\_\_\_\_

Education in addition to that obtained at CU. (Please give institution, field of study, degree received and year) \_\_\_\_\_

The following questions ask about your current work:

Company: \_\_\_\_\_

Work address: \_\_\_\_\_  
\_\_\_\_\_

Current position: \_\_\_\_\_

Primary duties of your current position: \_\_\_\_\_

To what degree were your applied math skills needed to obtain your current position?

(not at all)  (somewhat)  (frequently)  (critical to current job)

Comments:

To what degree does your current position utilize your applied math skills?

(not at all)  (somewhat)  (frequently)  (critical to current job)

Comments:

Which applied math courses or topics have been most useful to you in your current position?

Which applied math courses or topics have been most useful to you in previous positions?

Which applied math courses/topics have been least relevant?

Which courses/topics were not taught (or you did not take) that you wish you would have taken?

Please give any other comments on your Applied Math education at CU Boulder.

What, if any, information about yourself (job, spouse, children, etc.) would you like included in the next issue of the Applied Math newsletter? (NOTE: Only information that appears in this section, together with your name and graduation year, will be printed. Information given in the survey questions above will not be printed unless you so specify in this section.)

If you are ever in the Denver/Boulder area, would you be interested in talking with some of our undergraduate/graduate students about career opportunities in your area?

We are also trying to establish a list of companies that offer employment opportunities and internships for students in applied math. If your company is one of these, please give the name and contact information of the appropriate person.

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# APPLIED MATHEMATICS NEWSLETTER

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