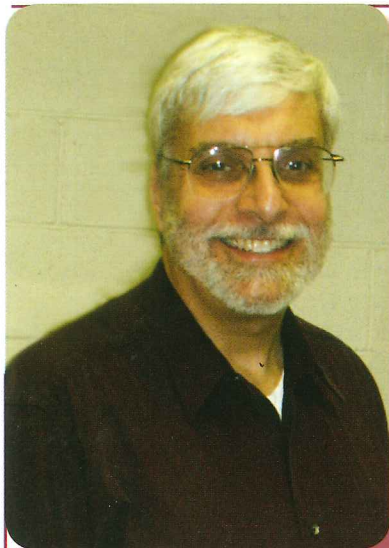


ELEMENTS

The Alumni Magazine of the Department of Chemistry at Virginia Tech - Fall 2006



The View from the Chair

It is hard for me to believe that I have completed two years as Department Chair and am nearly halfway through my third. It has been a wonderful two plus years – Chemistry is a great department and it is an honor and a privilege to serve as Chair. I have held a number of positions in the University over the last 19 years and, without a doubt, the Chair position has been the most rewarding.

In past issues of "Elements", I have talked about teaching and research and how successful the chemistry faculty have been in both areas. In this issue, I want to write about another group of people who play an enormous role in the success of the department – the classified staff. It is a certainty that without these wonderful folks, the Department would cease to function.

Our staff support the Department in all aspects of its operation: administrative, fiscal, and technical. Currently, on the administrative side, Linda Sheppard, Anna Hawthorne, Wanda Hensley, Sherri Kinser, Angie Miller, and EMillie Shepherd

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Iron Chef - Associate Professors Triumph

On Saturday, October 28th, a heavily favored superior team of Associate Professors defeated an inexperienced team of Assistant Professors, in Iron Chef: Chemistry Department. The secret ingredient was winter squash not including pumpkin and the Judges were Joe Merola, Brian and Olga Hanson, Vera Good, and Laurie Good. For those of you unfamiliar with the game, two teams face off to prepare a meal (of three dishes) using the secret ingredient and try to best express the characteristics of the secret ingredient. The time limit was five hours.

The teams consisted of (Assistant Professors): Diego "Roasted Red Pepper" Troya, Ed "Only if the secret ingredient is vodka" Valeev,



J. Morris, A. Esker, G. Yee

Webster "I haven't slept this month" Santos, Lou "Why can't we settle this by playing rugby instead?" Madsen and Sungsool "Pee-Wee" Wi. The Associate Professors were John Morris, Alan Esker, Paul Carlier, Paul Deck, and Gordon Yee.

The assistant professors led off with spicy acorn squash, corn, and shrimp

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The View from the Chair *(continued from Page 1)*

keep the day-to-day operations of the front office, the graduate program, the undergraduate program, and personnel "humming" along. Roberta Gilbert, Melba Edwards, and Judy Spicer make sure the books are balanced and the bills are paid. Jim Hall, Larry Jackson, Rob Gunter, and John Bursleson keep our scientific equipment and computer systems operating. Geno Iannaccone, Tom Glass, Bill Bebout, Anne Campbell, and Frank Cromer ensure that our research is supported by reliable analytical services. Rob Russell, Claudia Brodtkin, and Laura Shelton take care of our teaching laboratories. There is a lot of demand for construction and repair of scientific glassware and Tom Wertalik does a masterful job fulfilling this demand. Jan McGinty runs the Chemistry stockroom. Supporting our polymer program and the Macromolecules and Interfaces Institute, we have Esther Brann, Angie

Flynn, Laurie Good, Tammy Jo Hiner, Millie Ryan, and Mary Jane Smith.

You can see that it takes a lot of people to keep the Department going and I am very grateful to all for their part in the department's success.

We have seen quite a change in the support staff over the last year and I want to acknowledge the services of three long-time employees of the Department who have retired or are retiring this year. Many of you will remember them quite well. Vicki Hutchison was a fixture in our Department providing support for the graduate program for many years. She retired earlier this year after 20 years of service to the Department. Jim Coulter repaired electronic equipment in the Department for 21 years. Tom Glass has been a tremendous asset concerning the success of our nuclear magnetic resonance facilities. He is

retiring at the end of this year after an amazing 34 years of service to the Department.

I think it is a testament to the health and vitality of the Department that so many of our staff have been with us for quite a while. Seven of our current staff have been with us for 20-25 years. We are very pleased that four of our folks have been with the department for over 30 years!!

So, a huge thank you goes to all of the staff who help to make the Chemistry Department the great department that it is.



Alumni Lunch with Retired Faculty

*Jim Wightman &
Marcus Cook (Ph.D. '73)*



Herb O'Tool (Ph.D. '75)

September saw the return of several alumni from the 1970s to Blacksburg for a Chinese luncheon with many of the retired Chemistry faculty: Tom Perfetti, Marcus Cook and Herb O'Tool. At the October luncheon, Anne and Terry St. Clair from the Richmond area attended. Currently three children of Chemistry alumni are enrolled in the Chemistry graduate program. Tyler St. Clair – son of Anne and Terry St. Clair, Erika Borgerding – daughter of Michael Borgerding, and Michael Perfetti – son of



Tom Perfetti (Ph.D. '78) & Jack Graybeal



Harold Bell



Jim Viers

Chemistry Welcomes New Faculty



Lou Madsen

The Chemistry Department welcomes Assistant Professor Louis Madsen to the faculty. Lou feels very fortunate to have landed at VT and in

Blacksburg and hopes to bring new ideas and positive energy to the department.

Joining Lou at VT is his dynamic and insightful wife, Assistant Professor Christine Kaestle of the Department

of Human Development. Christine studies adolescent health behaviors using quantitative social methods to assess relationships between health, sexuality, and media. These two have settled in a house just north of campus, familiar to some Chem folks in that it was previously owned by Alan Clifford, former VT Dept Chair!

Lou grew up in Madison, Wisconsin - land of lakes, cheese, cold weather, and warm folks. His parents enjoyed their toils at UW Madison in the Medical Physics Department (Dad, Ernie, Professor) and Legal Services Department

Continued on Page 4

Webster Santos

Webster Santos is a new assistant professor of chemistry at VA Tech. He joined our department after obtaining his Ph.D. as a medicinal chemist at the University of Virginia and as a NIH postdoctoral fellow at Harvard University as a chemical biologist. His current research interests include developing new strategies for targeting infectious diseases using a chemical biology approach to medicine.

Webster was born and grew up in the island of Luzon in the pacific island, the Philippines. After nearly finishing high school, his family moved to the US when he was 17. After a year of high school in Portsmouth, VA, he became the school's valedictorian and



attended UVA. Although he has never been back to his native country, he has fond memories of the Philippines, and some interesting experience of several earthquakes and the eruption of Mt. Pinatubo.

During his undergraduate years at UVA, he started developing intensive interest in organic synthesis. He also met his wife, Claire, in his advanced organic chemistry class--and they eventually shared a hood in the laboratory of Professor Timothy Macdonald. Professor Macdonald claims to this day that the best gift

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Edward Valeev

Ed was born on July 15, 1976, in Tolyatti, USSR, a city of 700,000 people (to answer the most common question: it is located in European Russia, on Volga river near Samara, about 600 miles southeast of Moscow). Although I was born in Russia, I'm not an ethnic Russian, I'm a Tatar. Tatars have completely different language and culture from Russians, but unfortunately, I do not speak the language. I hope to learn it someday.

At the age of 11 Edward's family moved back to Yekaterinburg, a large city in Ural mountains, where they are from originally. Although he was always interested in science and bugged his parents with questions to no avail, it was in Yekaterinburg where he became serious about it. He wanted to be a physicist, but thanks to terrible physics teachers and a great chemistry teacher he switched



Continued on Page 4



New Faculty *(Continued from Page 3)*

Lou Madsen

(Mom, Helen, Attorney). Lou spent four years at Grinnell College in Iowa studying chemistry, physics, and the liberal arts, then went on to Caltech where he received his PhD with Dan Weitekamp. While at Caltech (and the Jet Propulsion Lab), he worked on fundamental advances to the sensitivity and applicability of nuclear magnetic resonance (NMR) through miniaturization. Lou was then extremely fortunate to meet Ed Samulski at UNC–Chapel Hill and spent four excellent postdoctoral years using NMR to study orientational order in soft materials as well as learning their

physics and chemistry.

Along the way, Lou has acquired a few passions other than science. He gets his exercise (and chiropractic “adjustments”) largely through rugby, and plays with the formidable Blacksburg Rugby Club. His automotive endeavors include customizing his 60s Dodge Darts and driving them on race courses. Playing jazz tenor saxophone provides an arts balance in his life.

Lou considers himself a “soft physical chemist,” meaning that he is especially interested in details of dynamics, order, and structure in polymers and

liquid crystals, and how these details relate to macroscopic properties. Lou seeks to understand material behaviors by developing novel NMR methodologies, hopefully such that they can be applied to general classes of samples and problems. Lou believes in an interdisciplinary approach to science, and enjoys developments most when they grow from multiple minds with their distinct perspectives and expertise.

Webster Santos

he has given him is not knowledge but his wife, Claire.

They then moved to the north east (Cambridge, MA) during his postdoctoral stint at Harvard in the laboratory of Professor Gregory Verdine. His research studies in chemical biology included understanding and developing a therapeutic strategy against hepatitis C virus and HIV. He moved to Virginia Tech in the fall of 2006.

Webster and Claire enjoy back-packing, camping and traveling to Europe. They frequently travel to Scotland to visit Claire’s family and to replenish his scotch collection. In his spare time, he tries to perfect his homebrew. They recently had an addition to their family, Lindsay Michelle, last October. Now she consumes all of their time.

Edward Valeev

to chemistry. Due to his second-degree diploma from the USSR Chemistry Olympiad he was admitted without entrance exams into Higher Chemical College, a highly selective school in Moscow. Ed studied chemistry there for 5 years and did experimental physical chemistry research for his thesis in the group of Dr. Yuri L. Slovokhotov. After a short stint in a graduate school in Moscow, he found himself in the US, as a graduate student at the Center for Computational Quantum Chemistry of the University of Georgia. Edward earned a Ph.D. after four great years under the mentorship and support of Prof. Fritz Schaefer III. He continued his academic career during the next 5 years as a Research Scientist in the Center for Computational Molecular Science and Technology at Georgia Tech. During that time he was also supported partially by Sandia National Laboratories and held a joint faculty position with Oak Ridge National Laboratory.

Ed’s current research focuses on the development of novel electronic structure methods for accurate prediction of molecular structure, properties, and reactivity. Unlike traditional methods based on molecular orbital theory, the new approaches treat pairs of electrons explicitly and as a result can achieve much more accurate results. Edward’s ideal day of research involves a healthy mix of analytical work, parallel programming, and chemistry applications.



Alumni Highlights



Bill Moore (Ph.D. '96) did not dream of becoming a doctor as a child. He grew up less than a mile from the hospital in South Hill, Va., and worked summers as an emergency room technician. He enjoyed the medical environment and seeing people being cared for in the hospital, but he still wasn't determined to become a physician.

Moore chose the pre-med path for his studies at Hampden- Sydney College, sacrificing his fledgling collegiate baseball career. But there was never an "ah-ha" moment when he absolutely knew he wanted to become a physician.

For the 35-year-old father of two, his epiphany came the night before he was scheduled to take the MCAT exam. "I decided at the last minute that I did not want to go to medical school," Moore said. "I had struggled with the decision, but I knew I wasn't ready for medical school." Moore went ahead the next morning and took the test, just to have the score on the books.

He then turned his attention to chemistry, attending Virginia Tech,

deciding it would be easier to earn a Ph.D. in chemistry than go to medical school; an assumption which he now says was definitely wrong. During his studies, Moore married his wife Angela and they welcomed their first child Nicholas into the family. However, there was one other addition that Moore faced during his graduate school years, the feeling that he really should have gone to medical school.

To help suppress these feelings, Moore volunteered with the rescue squad in Blacksburg, going on to found the Junior Rescue Squad for 16- to 21-year-olds. Upon completion of his doctorate, Moore landed a job with an environmental consulting firm in Blacksburg. He loved his work and threw himself into his career and family. Life was good. "Except for one thing," he says. Occasionally, "I would get this feeling that something was missing, that I really wanted to be a doctor."

With support from his wife and parents, he headed to Books-a-Million and bought the cheapest MCAT prep book he could find. He would have to take the test again to apply for medical school. When he took the MCAT, Moore was pleased that he didn't "bomb it" and began applying to medical schools.

Then came the interviews, followed by a call from U.Va. offering admission. "Then I got scared," Moore says. "But it was the best decision I have ever made in my life."

Moore says the transition to medical school was easy in the sense that he had no troubles returning to the classroom. He knew he was in the right place for his life. He was just so excited for the opportunity and privilege to be in medical school, that the workload never seemed to overwhelm him.

Moore and his family will soon begin the next phase of their lives as they relocate to Winston-Salem, N.C., where Moore will begin a residency in emergency medicine at Wake Forest University Baptist Medical Center. While he was concerned how medical school would affect his children, he has no concerns about what moving and residency will do to them.

Moore doesn't bear the weariness of four years in medical school as his family approaches the next step in their journey. He doesn't have second thoughts or those creeping feelings that something is missing in his life. He's realized his dream, and it's the best thing he's ever done.

Fred Frederick (Ph.D. '83) - Quality Assurance and Safety Coordinator: Not to be a killjoy, but 'in Virginia, our scientists' jobs aren't as flashy as those on television. We're not part of law enforcement so, with very few exceptions, our examiners don't go to crime scenes, and certainly never until they're secure - none of our employees is 'packing heat.' In fact, "The 'lab geeks' are actually the characters who more accurately portray our scientists' roles."

George Oley (B.S. '75): "Every day people are doing something nice for somebody at Virginia Tech." "Someone sent my son an autographed basketball. My daughter's professor called to make sure she was OK when she was sick and missed class one day. This is the kind of attitude that fosters loyalty."

Jim Yeatts: I am currently working as a laboratory research specialist at the College of Veterinary Medicine at North Carolina State University. I am married now and have two sons. Tyler is 5 years old and Timothy is 1 year old. My wife's name is Kristina-she is an ordained minister working part time as an education assistant in ministry for a church in Cary, NC.



chowder, (Webster says “chowdah” as per his recent Boston stint) served with butternut squash muffins and acorn squash stuffed baked red peppers topped with cheddar cheese and tomato picante. The main course was baked salmon over a bed of onions, peppers, and acorn squash served with squash and corn casserole. This was followed by hearty spiced provençal sauce with mixed vegetables (including celery, onion and green onion, green pepper, whole tomato, garlic) and beef, served over spaghetti squash and a garnish of acorn squash wedges. The meal was accompanied by a butternut squash and yogurt smoothie seasoned with cinnamon, nutmeg, and bananas, garnished with lemon (orange?) slices and mint leaves.

The associate professors meal started with an original butternut squash Bellini, a riff on a cocktail that is usually prepared with peach puree, consisting of squash puree, a splash of vanilla vodka and champagne. This was followed by a rich butternut squash soup seasoned with nutmeg, clove, cinnamon, fresh ginger and vanilla and served with a splash of cream. The main course was hickory-smoked dry-rubbed pork loin with acorn squash ravioli, wild rice medley topped with dry-roasted acorn squash seeds and sausage-stuffed delicata squash. For dessert: ginger butternut squash crème brulee garnished with candied ginger.

A great time was had by all, especially the judges who got to taste everything. The final score was 3-2 in favor of the associate professors and as a result, a rematch was immediately called for. A significant amount of trash talking occurred on both sides, but of course, it isn't bragging if you can back it up...



Chemistry News

Professor Tom Ward Officially Retires

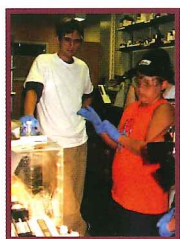


Tom Ward retired September 30 after 38 years at Virginia Tech. Tom's expertise in physical polymer science will be greatly missed. He received a BS in Chemical Engineering from North Carolina University, an MS and PhD in Physical Chemistry from Princeton University, and did post-doc work at University of Strathclyde in Glasgow, Scotland and University of Essex in Colchester, England. He

began his career at Virginia Tech in 1968, progressing from Associate Professor to tenured Professor of Chemistry in 1981. Tom has taught at both the undergraduate and graduate student level, and, over the past 14 years has directed the NSF Summer Undergraduate Research Program, which has graduated approximately 320 of the very best young chemist and engineering undergraduates from its 11 week course each year. In 1989, Tom was selected as the first Endowed Adhesive and Sealant Professor of Chemistry at Virginia Tech, a position that has remained with him until his retirement.



2006 Young Scientist Experience



The Macromolecules and Interfaces Institute presented the first Young Scientist's Experience (YSE) this summer. This program was held in conjunction with

the Summer Undergraduate Research Program (SURP) at Virginia Tech. For the Young Scientist's Experience, area middle school students teamed with SURP mentors to work in areas at the forefront of scientific research. With Virginia Tech faculty sponsors, teams assembled demonstrations showing magnetic fluids, optoelectronics and electrospinning. The public viewed these demonstrations and visited with the teams at Steppin' Out, August 4. The demonstrations were shown on Jackson Street, between the Wachovia Bank and the Post Office. The public voted for the best demonstration and an award was presented to the winning team at the SURP Picnic on Friday night.

The Macromolecules and Interfaces Institute (MII) directed by Chemistry Professor, Richard Turner, at Virginia Tech held its 2006 technical conference, "Review of Advances in Research at Emerging Frontiers," at the Inn at Virginia Tech, April 10 through April 12. At the conference, noted academic and industrial polymer scientists presented plenary lectures to lead sessions devoted to three major arenas of macromolecular science and engineering – life sciences, alternative energy technologies, and electronics and optics. Virginia Tech faculty members and students delivered 26 lectures and 91 posters. Elsa Reichmanis, director of polymer and organic materials research at Lucent Bell Laboratories, former Perkins award winner, and former president of the American Chemical Society, gave a plenary lecturer on "Advances in Macromolecular Materials at the Electronics/Optics Interface."



"Future Industrial Professional Scientist/Engineer" is a new course title offered by Richard Turner this Fall.

This course provides practical help for M.S. and Ph.D. level graduates who plan on entering industry. Students will be guided through a team-oriented introduction to industrial principles and practice. Dr. Turner is the Director of the Macromolecules and Interfaces Institute (MII) at Virginia Tech.

His background includes over 30 years of experience in the polymer chemical industry at Eastman Chemical in Kingsport, Tennessee.

Chemistry News *(Continued from Page 7)*



A BUCKYEGG BREAKS PENTAGON RULES



Chemists from Virginia and California have cooked a soup of fullerenes which produced an improbable buckyegg. The egg-shaped structure of their 'buckyballs' was a complete surprise for the researchers. In fact, they wanted to trap some atoms of terbium in a buckyball "to make compounds that could be both medically useful and well-tolerated in the body." And they obtained a buckyegg which both violates some chemistry laws and the FIFA soccer laws which were used until the last World Cup.

These buckyeggs have been the result of a collaboration between scientists at Virginia Tech, led by Professor Harry Dorn, who made the mixture of fullerenes, and UC Davis researchers, led by Professors Alan Balch and Marilyn Olmstead.



The Chemistry Club was selected to receive an Honorable Mention award for activities conducted in the 2005-2006 academic year. A



special note of thanks goes to Professor Gordon Yee and Claudia Brodtkin who have been serving as advisors to the club.



Fuel cells have been a workable technology for decades – but expensive and lacking in infrastructure. In recent years, researchers have addressed durability, manufacturability, and conductivity challenges in alternative proton exchange membrane (PEM) materials for fuel cells – bringing the hydrogen-based energy source closer to reality. James McGrath, University Distinguished Professor of Chemistry with the Macromolecules and Interfaces Institute at Virginia Tech, announced his research group's latest development, a PEM material that retains conductivity at low humidity, during his plenary lecture at the Challenges for the Hydrogen Economy symposium at the 232nd National Meeting of the American Chemical Society (ACS) on September 10-14 in San Francisco. The U.S. Department of Energy awarded McGrath and Professor Don Baird in the Department of Chemical Engineering \$1.5 million over five years to advance the research.

Computational Meeting



Profs. Troya, Valeev, and Crawford are co-organizers of the 36th annual meeting of the Southeastern Theoretical Chemistry Association (SETCA),



which will be held at Virginia Tech May 18th and 19th, 2007. This year's SETCA meeting will host several distinguished speakers, including Fritz Schaefer of the University of Georgia, David Beratan of Duke University, Peter Gill of the Australian National University, and E. D. Jemmis of the Indian Institute of Science in Bangalore, India. Although SETCA has existed since 1970, this will be the first year that the meeting has been held in the Commonwealth of Virginia.

Diego Troya, Assistant Professor, was the recipient of a prestigious CAREER grant by the National Science Foundation. Troya's five-year grant of \$608,000 will further his research into a theoretical understanding of the dynamics of gas/organic-surface reactions.

Joe Stevenson recognizes Tom Ward for his service to the Adhesive and Sealant Council at the 2006 Fall Convention.



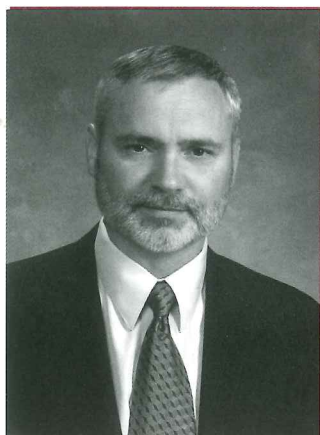
Virginia Tech has been awarded \$500,000 per year, renewable for nine years, by the Army Research Laboratory to establish Multilayered Technologies for Armored Structures and Composites (MultiTASC) Materials Center of Excellence. The center will develop polymer-based materials to protect personnel and equipment against attack. Timothy Long in Chemistry and Romesh Batra in the College of Engineering are the co-technical directors.



Faculty Cook Teaching Award 2006:
Alan Esker

Faculty Cook Research Award 2006:
Paul Carlier





Alumni Spotlight

IT ALL BEGAN WITH A POLYMER SHORT COURSE IN 1982....

Jim attended the American Chemical Society's Principles and Practice Polymer Short Course, taught by Professors Tom

Ward, Jim McGrath, and Garth Wilkes, at Virginia Tech in the fall of 1982. He was sent by Albany International Research Company, located in Dedham Massachusetts, to learn more about polymers. He called his wife, Cynthia, back in Boston while he was still in Blacksburg and stated "You would love it here". When he returned to Massachusetts he was determined more than ever that he would return to school to earn his doctorate in Chemistry. In the Fall of 1983 he began graduate school in the Chemistry Department at Virginia Tech with Professor Larry Taylor as his advisor.

BEFORE VIRGINIA TECH

As a child, it was Jim's intention to pursue a career in the printing business, photo-offset lithography, or attend an agricultural school and become a botanist. But, a high school teacher of his, Robert Simons, suggested to Jim that he try one semester at college and major in Chemistry. Jim chose Lowell University in Lowell, Massachusetts which cost approximately \$600 dollars a semester. His grandmother paid for his books. Jim commuted from home, about 45 miles each way, was responsible for paying for food, fuel, and all car expenses.

During Jim's first year in college at Lowell University he became involved in research with oil spill recovery, using an amine carbamate reaction to convert the liquid oil to a waxy solid. He co-published his first paper in the Marine Technology journal. As an undergraduate Jim also worked in the area of gas chromatography. He designed a novel spiral flow chromatography column. He also worked in atomic absorption spectroscopy of soils, understanding how the residual organic chemicals in wood pulp caused interferences in the reliable determination of heavy metals such as chromium and lead in lakes and rivers. Jim was hired by Albany International Research Company (AI) his last semester of his senior year of college. He married Cynthia Sproul December 27, 1980, and he finished his Chemistry Degree nights with graduate courses while working full time days. After Jim was sent to the Polymer Short Course at Virginia Tech he designed and built a high capacity thermogravimetric analyzer. He was invited to present a paper about this novel instrument at the North American Thermal Analysis Society.

James Rancourt
(Ph.D. '87)

Jim's dreams in life at this point were to get his Ph.D. and to own a company some day. His work at Albany International prevented him from working directly with clients because he did not have a graduate degree. In the fall in 1983 Jim moved from Boston with his wife and began graduate school at Virginia Tech. His wife, Cynthia, began working as a nurse at the Student Health Service at Virginia Tech. Jim finished his Dissertation in 1987.

AFTER VIRGINIA TECH

After completing his Doctorate in Chemistry, Rancourt initially established Polymer Solutions Incorporated (PSI) to provide analysis and development of polymeric systems. The tagline of Polymer Solutions Incorporated has evolved to *providing quality answers through independent chemical analysis, physical testing, and R&D*. This tagline is important for several reasons, in addition to providing focus and direction to the company. First, many industrial clients did not "know" that adhesives, paints, coatings and molded plastic parts, for example, are polymeric materials. Second, PSI lost a profitable contract in 2000 with an automotive supplier solely because they lacked a quality system. PSI became ISO/IEC 17025 accredited in 2001 vastly expanding its marketability in the industrial sector. PSI is now GLP compliant further expanding its market to the medical field.

PSI is considered a small business by many measures; gross income, capital, number of employees and the size of the facilities. However, it is a serious player in the independent laboratory industry. PSI has a security level clearance with the United States Department of Defense, has been successfully audited by the Defense Contract Audit Agency, has passed a safety audit by the United States Navy that has allowed the company to store and test ammunition and explosive samples on-site, has passed rigorous audits by major medical companies to whom the company provides critical analytical data, has been utilized by Bridgestone/Firestone in numerous high profile programs, and has invented novel materials and analytical methods.

In January of 2007, Polymer Solutions Incorporated will break ground on a new 34,000 square foot facility in the Blacksburg Industrial Park. PSI is currently expanding

Continued on Page 10

James Rancourt *(continued from Page 9)*

in the areas of materials R&D, on-site in vitro testing, collaborative in vivo testing, enhanced physical characterization capabilities, and high temperature molecular weight analysis. Custom manufacturing within the new facility is also expected to occur as direct offshoots of the R&D projects conducted on behalf of industrial and government clients.



Jim with his wife, Cynthia and four children.

PSI is family centered with the addition of Jim's wife, Cynthia to the team as the Quality Manager. Cynthia has successfully taken the company, together with the other staff members, through every audit. The oldest child of Jim and Cynthia, Josh Rancourt is now part of the team. Josh directs many activities related to the facilities, equipment, and instrumentation. Basically, his job is to keep everything running so that maximum productivity is achieved by the staff.

Academic Alumni



Paige Phillips (Ph.D. '98) & Steven Stevenson (M.S. '92, Ph.D. '95): Paige and I are forever Hokies and root for Tech. As you know, we are at Southern Miss now and will come to Blacksburg for the Southern Miss/VT football game. On the professional front, I'm in my 3rd year and doing well. I am

humbled and grateful for my recent NSF CAREER grant. Paige has also begun her tenure-track appointment. We are excited to have jobs as tenure-track faculty within a Ph.D. granting university. She is thrilled to have a generous start-up package from Southern Miss. She has built her research group to about 10 students.

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John Berry: "I finished postdoctoral work in Germany and moved to Madison, WI (USA) in August to join the faculty in the Department of Chemistry at the University of Wisconsin as an assistant professor. My new email address is <berry@chem.wisc.edu>."

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Eugene Khor (Ph.D. '83): "For almost 20 years, my research has been in biomaterials. It began with a program to improve the tissue heart valve from premature calcification in the early 1990s. Subsequently, an extensive program in chitin-based materials ensued; covering production, chemical derivatization, characterization and biomedical applications of the biopolymer. The emphasis has always been applied. The outcome of all this effort has been more than 40 journal papers, 4 patents and a financially viable and growing spin-off company ([www.brass-asiapacific.com](http://www.brass-asiapacific.com))."





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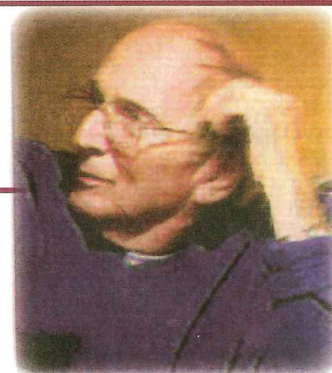
# Chemistry Department Grantees

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Felicia Etzkorn<br>"Designed Inhibitors of Pin 1 in Mitosis"<br>National Cancer Institute                                                                                                              | Diego Troya<br>"Atomistic Simulations of Hyperthermal Collisions<br>Between Closed-Shell Gas Phase Species and Organic and<br>Inorganic Surfaces"<br>Air Force Office of Scientific Research                                         |
| David Kingston<br>"Studies of Tubulin-Interactive Anti-Cancer Drugs"<br>National Cancer Institute                                                                                                      | James Tanko<br>"Activation/Driving Force Relationships for the<br>Unimolecular Rearrangement of Radical Ions"<br>National Science Foundation                                                                                         |
| Karen Brewer<br>"Visible Light Induced Interactions with DNA by<br>Rhodium Centered Supramolecular Assemblies"<br>National Science Foundation                                                          | James McGrath<br>"Synthesis and Characterization of Sulfonated<br>Poly(arylene ether sulfone) Copolymers: Potential<br>Candidates for Chlorine Resistant Surface Active Water<br>Purification Membranes"<br>Office of Naval Research |
| Tim Long / Tom Ward<br>"Fundamental Investigations of Tailored Macromolecular<br>Topology and Chemical Reactivity for 'functional'<br>Materials and Advanced Transducers"<br>U.S. Army Research Office | John Morris<br>"Molecular Beam Studies of Energy Exchange,<br>Accommodation, and Acid/Base Chemistry at the Gas-<br>Solid Interface"<br>National Science Foundation                                                                  |
| Sungsool Wi / Harry Dorn / 8 Faculty<br>"Acquisition of a 600 MHz Nuclear Magnetic Resonance<br>Spectrometer at Virginia Tech"<br>National Science Foundation                                          | Harry Dorn / Harry Gibson<br>"NIRT (Nanoscale Interdisciplinary Research Teams):<br>An Optimized Nanosphere Platform for High-Resolution<br>Multi-Modality Imaging Applications"<br>National Science Foundation                      |
| Paul Deck<br>"Highly Fluorinated Diels-Alder Polyphenylenes"<br>American Chemical Society                                                                                                              | Gordon Yee<br>"A Different Strategy for the Production of Molecule-<br>Based Nanomagnets"<br>National Science Foundation                                                                                                             |
| Judy Riffle<br>"Materials World Network for the Study of<br>Macromolecular Ferrofluids"<br>National Science Foundation                                                                                 |                                                                                                                                                                                                                                      |

## Support the Chemistry General Fund

The Department of Chemistry has established a Chemistry General Fund. Your contributions to this fund will be used to support the seminar and colloquium program, curriculum enhancements, student recruiting, student and faculty travel, and a variety of other activities. These unrestricted gifts provide special support to foster an intellectual community of faculty and students. Checks should be made payable to the VT Foundation, Inc. and you should designate "Chemistry General Fund" on the memo line of your check. Does your company provide matching gifts? If your employer participates in a matching gifts plan, please complete the paperwork to double or triple your contribution. We appreciate your support.



### John Grove Mason

John Grove Mason, 76, passed away Wednesday, March 29, 2006 at Montgomery Regional Hospital, surrounded by his family. Born in Louisville, KY on December 4, 1929, he was the son of John and Mary Louise Mason and the youngest of three children. He attended the University of Louisville from 1946-1950 where he received his BS degree in Chemistry. From there he went to Ohio State University, receiving his PhD in Analytical Chemistry in 1955. On August 6, 1955, he met Elizabeth Kent Gayle on a blind date. It was such a successful date that they went out for 53 of the next 54 days, became engaged at Christmas and married in Baltimore on August 25, 1956. In September 1959, he joined the faculty of the Virginia Polytechnic Institute (VPI). He was a voracious reader, particularly of mystery novels and works of history of places such as Russia, the Middle East, and Ireland. He had a lifelong love of classical and jazz music. From his childhood forward he was an avid movie-goer and watcher, especially with the advent of videos and DVDs, which enabled him to revisit old favorites while keeping up with current films.

### John Mason Remembered

"Dr. Mason and Dr. McNair split the Analytical Chemistry core course that we all took as entering graduate students in 1978. He was a fine teacher and he was a very happy fellow, which made learning electrochemistry interesting indeed!" Michael Borgerding (B.S. '78; Ph.D. '82)

"Dr. Mason was a great fellow. Just thinking about him makes me smile. He was always a happy guy, ready to help. God knows he helped me a lot in my final defense and thesis. Without his knowledge of kinetics I don't think I could have figured out what was going on. He unraveled the mystery of the reaction kinetics and was able to teach me enough to realize that we actually had found one of only 2-3 isokinetic reaction knowns at that time." Tom Perfetti (Ph.D. '78)

"Dr. Mason was on my committee and introduced me to the wonderful science of electrochemistry. This electrochemistry proved to be an integral part of my research in the Navy and while at Dow Chemical. I still have a very fond place in my heart for both Dr. Mason and his science. He was among the first to help me at Tech along with Dr. Alan Clifford." William M. Coleman, III (M.S. '70; Ph.D. '77)

"In 1967, I was fortunate enough to take undergraduate Analytical Chemistry under Dr. Mason. He instilled in me a renewed interest in the subject of chemistry. My attitude changed from that of just fulfilling course work to get out of VPI to that of obtaining knowledge. Dr. Mason gave me my first real job in the field of chemistry. I was married in my last year at Tech and my wife was employed at the Radford Arsenal. During Christmas/Winter quarter break, I had some solitary time on my hands and began sulking over what to give my wife for Christmas. Having no money to purchase a gift, it began to worry me about what kind of 1<sup>st</sup> Christmas we were going to have. Dr. Mason came through by offering me a job in the department over the break where I believe I made about \$70. With this vast amount of money, I was able to purchase my wife her first heated hair roller set." Charles H. Risner (B.S. '69)



## Alumni Highlights *(Continued from Page 10)*

### FORMER GRADUATE STUDENT PASSES



*Paul Koning and Family*

Paul Koning (Ph. D. '88), a member of Assembly & Test Technology Development at Intel, recently passed away. Paul started work at Intel in May 1999 in the

Polymer Formulation Lab, and the Annual Intel Polymer Workshop. He was also a key content expert who helped with the development of the Polymer Materials curriculum. Just this year, Paul drew large



*Paul with fellow chemist John Hellgeth*

Materials Organization where he was a Senior Polymer Technologist in the Materials Technology Operation group. Paul was a leading Intel expert in polymer materials and their applications in component assembly and packaging. Paul was a prolific technologist. As of the end of 2005, Paul had 15 US patents and 31 pending patents while working for Intel. Paul received his B.S. in Chemistry in 1980 from Cal Poly at San Luis Obispo and his Ph.D.



*Paul discusses polymers*

in the Polymer Physical Chemistry in 1988 from Virginia Tech under the direction of Professor Tom Ward. Paul was a founding member of the Intel Polymer Network, the Intel

groups of students at the Intel Shanghai and Penang assembly sites in China where he delivered these courses. Paul was truly an outstanding person who touched the lives of many individuals with his kind and gentle ways. He was always a jovial person who, without hesitation, would step forward and

help others with their difficulties. Paul

passed away on October 6. He is survived by his wife of 25 years, Cindy, and their two children, Brian and Daniel, who live in Chandler, AZ.

### FORMER DEPARTMENT HEAD PASSES

Dr. Robert Krug, 88, died Sunday, October 29, 2006, at Rappahannock General Hospital. Born July 23, 1918, in Richmond, Virginia, Robert was the son of Uldine V. and Charles F. Krug. The greatest love of his life, his wife of 64 years, Kathryn Rebecca Leviston Krug, preceded him in death this past March. Robert received his Bachelor of Science from the University of Richmond, his Master of Science from Pennsylvania State University, and his doctorate in chemistry from The Ohio State University. In 1950, he joined the faculty of Virginia Polytechnic Institute and State University where he later became Chairman of the Department of Chemistry and was the first recipient of the W.E. Wine Award for excellence in teaching. In 1965, Robert joined George Mason Community College as Dean of Faculty and Professor Emeritus of chemistry. Later, when the school became independent of the University of Virginia, he became Vice President of Academic Affairs and later, third University President of George Mason University. In January of 1980, the Board of Visitors recognized Robert's 14 years of academic service by naming one of the original buildings of the University, 'Krug Hall'. Funeral services were held on Wednesday, November 1, 2006, at Abingdon Episcopal Church.



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## Alumni Highlights *(Continued from Page 13)*

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### Insane Rides to Maintain Sanity

Sandra Case

B.S. 1997, Ph.D. 2003

During the eleven years that I spent at Virginia Tech, not only did I obtain two degrees from the Chemistry Department, I also developed a passion for cycling, especially during the graduate school years. When I completed my Ph.D. in June 2003, I moved to Cary, NC to make glue for LORD Corporation. During my first couple of years at LORD, I had a lot of adjustments to make. Not only had I moved away from the great friends that I rode with, I was forced to work at least 40 hours per week. (This wasn't the case in graduate school, although maybe I would have finished in less than 6 years if it had been, but I have no regrets there!) So, my time on the bike decreased and my fitness level dropped. As I began to settle into my new life, though, I began to squeeze more and more time for cycling in. In April 2006, a friend and a former Chemical Engineering graduate student, Eric, that I used to ride with, informed me that he would be returning to Blacksburg to ride in Mountains of Misery which is 100 miles with about 10,000 feet of climbing. He suggested that I should do it with him. I laughed and said it would be impossible – I hadn't been riding much and the riding that I had been doing was in the flatlands near Raleigh. However, I looked back at the training log that I kept before I did Mountains of Misery in 2002, while I was still a graduate student, and realized that I was probably in better shape this April than I was then. So, I developed a training plan. Then I ran across an organized century ride, the Raven Rock Ramble, which would depart 5 minutes from my house on my birthday. The timing was great for a Mountains of Misery training ride and it just seemed like the perfect thing to do on my birthday, especially since it departed so close to my house. It was destiny. So, I signed up, all the while envisioning a nice, pretty, sunny day to ride all day on my birthday. As it turns out, it rained ALL day, but I completed the ride and felt pretty confident that I could finish the Mountains of Misery ride. Memorial Day weekend I headed back to Blacksburg for Mountains of Misery. It was a reunion of sorts – I got to ride with many of the friends that I used to ride with while living in Blacksburg and the weather was beautiful. The final ascent up Mountain Lake on Doe Creek Road nearly killed me, but I survived and was able to collect my finisher's T-shirt. This inspired me to seek out other centuries in the mountains, and I ran across a ride called the Roan Moan in Elizabethton, NC in July. This is about an hour south of Johnson City, TN, which

happens to be where Emmett, a friend of mine that I worked closely with in graduate school, lives. Again, it was destiny, so I made arrangements to stay with him and do the ride. This ride, advertised at 100 miles and 8000



feet of climbing, was not nearly as brutal as Mountains of Misery. I felt good at the finish of it, even though it had rained on and off all day, and the descent off of Roan Mountain was brutally cold. Hanging out with Emmett in Johnson City was also a blast, and it was a great weekend adventure. Feeling good, I decided to look for another century and found one in Fletcher, NC called the Hilly Hellacious Hundred. I convinced a friend that still lives in Blacksburg, Jon, to meet me there and do the ride with me. Although it was advertised as 100 miles and 8000 feet of climbing, it was worse than the Roan Moan. At the end, Jon's GPS showed that it was more like 100 miles and 9000 feet of climbing. But we survived it, the weather was spectacular, and we had an awesome time riding it together. So, I completed 4 centuries in one summer, with 2 of them in the rain. Next summer I'd like to do at least 5 centuries, and want to try to do two of them on back-to-back weekends. I'm a glutton for punishment, but it is a great way to spend time with friends, and it is a great stress relief to get out on the bike and put in the miles when the glue-making gets stressful!

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Jennifer Cornelius (B.S. '98): I don't know if you will remember me, but here goes. Remember way back in 1993, a young struggling Biology major came to Dr. Taylor's office every day after class and every day he tried to make her change her major to chemistry? Then finally after four long years and a biology degree she finally decided to make the change to chemistry. Dr. Taylor was a guest at my wedding in 1998. I just wanted to touch base with you and see how things were going. I am still in South Carolina working for a division of Pfizer as a chemist.

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John S. Dick: (B.S. '69) received the ASTM International Rubber Committee D11 Distinguished Service Award for more than 25 years of service.



# Donors

Appreciation is extended to all alumni, friends, faculty and organizations that have contributed to the Department of Chemistry at Virginia Tech over the years. Your gifts make a difference and can be designated for general department needs or specific programs and scholarships. The following names are donors for the period January 1, 2006 to June 30, 2006.

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## VIRGINIA TECH DEPARTMENT OF CHEMISTRY'S MISSION

The Virginia Tech Department of Chemistry has a long history, a solid reputation and a bright future. Our courses provide the chemical foundation for all Virginia Tech science and engineering students and broaden their understanding about the structure and properties of matter. Our undergraduate and graduate degree programs prepare society's future chemists and scientists. Our faculty's research and scholarships generate and disseminate chemistry knowledge to the Commonwealth, the nation and the world. And our outreach programs offer opportunities to share this knowledge with others, including practicing professionals, as well as primary and secondary school children. To achieve our mission, the Virginia Tech Department of Chemistry will continue to pursue multi-disciplinary research within and beyond the University, to find innovative ways to instruct students, to forge partnerships with industry and government and to establish a reputation as one of the world's highest ranking chemistry departments.

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