NIOSH Approves Establishment of Education and Research Center in Colorado

It has been 10 years since the National Institute for Occupational Safety and Health last approved a new Education and Research Center, but growing demand for professional health and safety programs, continuing education opportunities and community outreach convinced the agency that the time was right. Building on successful training programs in industrial hygiene and occupational medicine, a consortium including Colorado State University, University of Colorado at Denver and Health Sciences Center, National Jewish Medical and Research Center, and other organizations recently was given the go-ahead to establish the Mountain and Plains (MAP) Education and Research Center (ERC).

“When we look at some of the regional public health challenges, establishing a NIOSH ERC in Colorado makes a lot of sense,” said Dr. Stephen Reynolds, a Professor in the Department of Environmental and Radiological Health Sciences and Deputy Director of the MAP ERC. “Areas of concern include emerging infectious diseases, disaster preparedness and emergency management, occupational health disparities particularly among Native Americans and Hispanics, and an aging workforce.”

The National Institute for Occupational Safety and Health (NIOSH) was created to conduct research and training and make recommendations for the prevention of work-related illnesses and injuries. NIOSH developed the Education and Research Centers and funded 15 ERCs at universities across the United States to serve as regional resources and provide multidisciplinary graduate and continuing education programs in occupational medicine, occupational health nursing, industrial hygiene, occupational safety, ergonomics and closely related fields of study. The Colorado consortium represents the 16th ERC for the institute.

MAP will provide high-quality graduate level education in a variety of occupational health and safety fields. Core training includes: Occupational and Environmental Medicine Residency (Dr. Bibi Gotchel at CU Health Sciences Center); Industrial Hygiene (Dr. Reynolds); Ergonomics (Dr. John Rosecrance, ERHS); Health Physics and Radiation (Dr. Tom Borak, ERHS); Occupational Health Psychology (Dr. Peter Chen, CSU Department of Psychology); and the development of a new program in Occupational Epidemiology.

“The center will allow us to combine our assets to support the six core training areas with more than 30 primary faculty, over 50 supporting faculty, and 38 core courses currently taught on participating campuses,” said Dr. Reynolds. “With the assistance of the Continuing and Distance learning programs, as well as faculty members teaching...
Welcome

Dear Friends,

Since the last edition of Emitter Magazine in May, we have had a number of exciting developments that reflect the incredible amount of energy and innovation coming from our faculty, staff and students. I’ll just touch on several things here, as you’ll find more detailed articles in the pages of this Fall 2007 Emitter Magazine.

First off, building on more than 35 years of excellence in cancer research and biomedicine, in August Colorado State University named its second Supercluster, Cancer Research and Treatment, along with NeoTREX, an embedded business enterprise dedicated to speeding the transition of life-saving cancer research from the academic world to the global marketplace. Dr. Robert Ullrich, a Professor in the Department of Environmental and Radiological Health Sciences and current Director of Research in Oncology for the University’s Animal Cancer Center, will serve as the Cancer Supercluster’s Director of Research as well as Chief Research Officer of NeoTREX. Dr. Stephen Withrow, a Professor in the Department of Clinical Sciences, will serve as the Director of Academics and Chief Scientific Officer.

The next announcement was one that we had been anticipating but were waiting for formal approval. The National Institute for Occupational Safety and Health has selected Colorado for its newest Education and Research Center (ERC), the first new ERC in more than 10 years. The creation of the ERC speaks to the Herculean efforts of all the individuals and institutions involved who saw a need for the ERC and pushed forward in the interest of public health and safety.

The third major announcement was the renewed funding of the High Plains Intermountain Center for Agricultural Health and Safety. With a new commitment to applied research, numerous projects within HICAHS were approved that promise to improve the lives and working conditions of agricultural families and employees.

In other good news, the graduate program in health physics has received accreditation from the American Board for Engineering Technology. Congratulations to everyone who worked so diligently to make this happen.

In departmental news, renovation has begun at the James L. Voss Veterinary Teaching Hospital and the new Varian Trilogy linear accelerator should be installed, powered up, running and tested by mid-November. The new system will facilitate the development of advanced cancer treatment and research programs, and once again reflects the cutting edge radiation oncology program at Colorado State University.

We are extremely proud of our faculty, staff and students, and excited for the continued success of all their endeavors. The Department of Environmental and Radiological Health Sciences has a special synergy – and the word about our Department is spreading! This fall, we are welcoming a near record number of graduate students into our programs in environmental health and the radiological health sciences, and welcoming many incoming freshman and transfer students. It’s shaping up to be a busy semester and we look forward to a wonderful fall.

Best Regards,

John D. Zimbrick, PhD
Professor and Head
Department of Environmental and Radiological Health Sciences
NIOSH Renews Funding for HICAHS

The National Institute for Occupational Safety and Health has renewed funding for the High Plains Intermountain Center for Agricultural Health and Safety at Colorado State University. The center now has an additional four years of funding to continue its work in agricultural health and safety research, outreach, and education.

“We are very pleased with the continuation of funding that will allow us to begin new studies as well as continue existing work in agricultural safety, making a real difference in the lives of agricultural workers across the country,” said Dr. Stephen Reynolds, a Professor in the Department of Environmental and Radiological Health Sciences, and Director of the High Plains Intermountain Center for Agricultural Health and Safety (HICAHS). “We have a number of studies moving forward, including two in the dairy industry, one in youth education, and another focused on developing agricultural partnerships for outreach.”

The High Plains Intermountain Center for Agricultural Health and Safety was established in 1991 through a grant from the National Institute of Health and Safety (NIOSH), a research and service arm of the Centers for Disease Control and Prevention. HICAHS is a multi-disciplinary organization incorporating the fields of engineering, industrial hygiene, education, toxicology, social work, epidemiology, environmental health, and agricultural sciences. The center is one of 10 NIOSH centers nationwide dedicated to agricultural health and safety.

In addition to continuing funding of the HICAHS administrative core, studies funded at HICAHS in this new cycle by NIOSH include:

1. Intervention Study – Dr. John Rosecrance, an Associate Professor in the Department of Environmental and Radiological Health Sciences, and Dr. Dennis Lamm, a Professor in the Department of Agricultural Sciences, are working to enhance the translation and dissemination of health and safety research work by developing agricultural partnerships that will help in outreach efforts. Working with partners including workers compensation organizations, rural health care, agricultural associations, and using the Colorado State University Extension model for translation, the project will build a regional program that will bring resources together to assist the agricultural industry in addressing health and safety issues. A special area of focus is developing the resources necessary to reach out to tribal nations, helping to enhance their agricultural health and safety.

2. Exposure Study – In another dairy study, researchers are following dairy workers over time to measure respiratory function and look at respiratory disease progression. Respiratory disease is a concern in the dairy industry because workers are exposed to dust, ammonia, and bacterial endotoxins, all of which can create respiratory distress or trigger asthma attacks. Working with the Integrated Livestock Management Program at CSU, researchers will look at how the human body reacts and adapts to organic dust and endotoxins, and look at the return to normal health post-exposure. Genetic studies also will be incorporated into the study, which will measure exposures leading to predominantly asthma-like diseases with wheezing and shortness of breath. The goal is to get results to the dairy industry so it can better reduce exposures, and also train workers more effectively to reduce their personal exposure levels. Dr. Reynolds is the lead investigator on this study. HICAHS is collaborating with the University of California-Davis which is conducting a similar study in California.

3. Dr. Vicki Buchan, a Professor in the Department of Social Work, will continue her work developing an educational CD on health and safety aimed at children in 4-H programs. Dr. Buchan has developed and completed a pilot test of the program, and will now refine and improve and then introduce the interactive CD on a national scale. She will be following participants to see how the educational CD changes health and safety behavior of not only children, but their parents as well.

4. Dr. Rosecrance with co-investigators Dr. Peter Chen, a Professor in the Department of Psychology, and Dr. Dennis Lamm, a Professor in the Department of Agricultural Sciences, are working to enhance the translation and dissemination of health and safety research work by developing agricultural partnerships that will help in outreach efforts. Working with partners including workers compensation organizations, rural health care, agricultural associations, and using the Colorado State University Extension model for translation, the project will build a regional program that will bring resources together to assist the agricultural industry in addressing health and safety issues. A special area of focus is developing the resources necessary to reach out to tribal nations, helping to enhance their agricultural health and safety.

For more information on the High Plains Intermountain Center for Agricultural Health and Safety, visit www.hicahs.colostate.edu.
Dr. Reynolds Elected to Lead Industrial Hygienists Organization

The American Conference of Governmental Industrial Hygienists (ACGIH) has announced that Dr. Stephen J. Reynolds, a Professor in the Department of Environmental and Radiological Health Sciences, has been elected to the position of Vice Chair-Elect.

“ACGIH is the smaller of the two major scientific/professional societies in industrial hygiene in the United States, but is the international leader in establishing best practice guidelines such as the Threshold Limit Values for occupational exposures,” said Dr. Reynolds, who also is the Director of the High Plains Intermountain Center for Agricultural Health and Safety. “This will be a tremendous opportunity for Colorado State University to continue to establish itself as a national leader in health and safety, and to help meet the societal needs in industrial hygiene that continue to change and grow.”

ACGIH members elected Dr. Reynolds to the position of Vice Chair-Elect. He will begin his four-year term on Jan. 1, 2008, and will serve as Vice Chair of ACGIH in 2009, Chair in 2010, and Past Chair in 2011. Dr. Reynolds joined ACGIH in 1995.

ACGIH is a member-based organization that advances occupational and environmental health. ACGIH is one of the industry’s leading publications resources, with approximately 400 titles relative to occupational and environmental health and safety.

Dr. Stephen J. Reynolds

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on partnering campuses, our students will have access to a diverse set of course offerings to customize their specialty to meet their needs and academic goals. We also have the first Colorado School of Public Health, recently approved and set to enroll its first students next year, and that complements the work of the new ERC.”

Dr. Reynolds noted that NIOSH is expanding and growing its programs in the West, and the new ERC (along with the Colorado School of Public Health) provide support for the greater NIOSH goals of improving worker health and safety through education and training. MAP also will participate in research programs that focus on the National Occupational Research Agenda (NORA) and the Healthy People 2010 objectives and goals. Multidisciplinary research will take place with a focus on practical applications to worker health and safety.

Outreach programs include a special focus on underserved and tribal communities, increased public awareness of occupational health and safety issues, consulting, and learning programs that offer educational opportunities in rural areas.

“We are well-positioned to make this work seamlessly because of our School of Public Health and because we already have the cooperative programs and infrastructure in place to help things run smoothly,” said Dr. Reynolds. “This also is an important time for the establishment of the ERC because of the increased need for students in these fields of focus. Many individuals in public health are retiring at the same time we see the need for specialists in the fields increasing, so we must move quickly to ensure we have the professionals we need to meet the public health demands of today and tomorrow.”

Dr. Lee Newman, with the CU-Denver Health Sciences Center, is the Director of the new ERC. Richard Simpson (CSU) and Karen Mulloy (CU) are heading up continuing education. ERHS alumna Cindy Becnel is acting as ERC coordinator, particularly with regards to community outreach.

Collaborating institutions in the Mountain and Plains Education and Research Center include CSU, CU, and National Jewish, as well as the University of New Mexico Health Sciences Center, Center for Applied Studies in American Ethnicity, High Plains Intermountain Center for Agricultural Health and Safety, Miners Clinic of Colorado, and the Colorado Injury Control and Research Center. To learn more about the NIOSH Education and Research Centers, visit: http://www.cdc.gov/niosh/oep/centers.html.
Building on more than 35 years of excellence in cancer research and biomedicine, Colorado State University named Cancer Research and Treatment its second Supercluster, and also announced the creation of NeoTREX, an embedded business enterprise dedicated to speeding the transition of life-saving cancer research from the academic world to the global marketplace.

The Supercluster will focus new and existing cancer research from five colleges across the University via a highly collaborative structure with the goal of developing effective treatments and products in the fight against cancer and quickly moving these advances into the marketplace and to the people who need them. The majority of faculty members involved with the Cancer Supercluster are within the Department of Environmental and Radiological Health Sciences, and the Department of Clinical Sciences.

Dr. Robert Ullrich, current Director of Research in Oncology for the University’s Animal Cancer Center (ACC) and a Professor in the Department of Environmental and Radiological Health Sciences, will serve as the Cancer Supercluster’s Director of Research. The academic side of the Supercluster will be under the direction of Dr. Stephen Withrow, Director of the ACC. Drs. Withrow and Ullrich also will serve as Chief Scientific Officer and Chief Research Officer, respectively, of NeoTREX.

Dr. Ullrich has studied cancer in an effort to understand its cause, to find cures and develop preventative medicines since 1974, and has received 30 years of consecutive funding from the National Cancer Institute. He holds the Barbara Cox Anthony University Chair and currently oversees activities for 12 research laboratories within the University’s Animal Cancer Center and nearly $3 million in annual funding for cancer research and training. Dr. Ullrich also directs the $9.7 million NASA-funded Specialized Center of Research which focuses on innovative approaches for estimating cancer risks from space radiation identifying genetic changes that are responsible for radiation-induced leukemia.

“Cancer is a major public health issue and a burden on the wellness of all societies around the globe,” said Dr. Ullrich. “Colorado State has a rich history in researching cancer – from the basic science behind how it succeeds in a body to developing cures and treatments. Over the last 40 years, the knowledge and expertise that has been developed here at Colorado State to fight this devastating disease is nearly unquantifiable.”

The Cancer Supercluster is a collaboration of the University’s Colleges of Veterinary Medicine and Biomedical Sciences, Natural Sciences, Applied Human Sciences, Agricultural Sciences and Engineering. It builds on nearly four decades of Colorado State excellence in cancer research currently funded by organizations such as NASA, the National Institutes of Health, the National Cancer Institute, Morris Animal Foundation and U.S. Department of Energy. The ACC, noted Dr. Ullrich, is the cornerstone of the program because of the spontaneous tumor models it provides.

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Dr. Robert Ullrich
The development of the Cancer Supercluster and NeoTrex provide both human and animal cancer researchers with the opportunity to work closely together for the benefit of both species,” said Dr. Withrow. “This new structure develops a cancer research and treatment enterprise that can significantly impact the global cancer problem. Our long-term objective will be to advance beyond chronic treatment to early detection, prevention and cures for this disease.”

The current cancer program at the University encompasses 65 faculty members from 12 departments. Research and training within the program includes carcinogenesis, chemoprevention, cancer risk assessment, cancer diagnosis, experimental therapeutics, medical oncology, radiation oncology, surgical oncology, and core related sciences including genomics, proteomics, metabolomics, bioinformatics and pharmacokinetics. The Cancer Supercluster also incorporates a graduate training program in cancer biology, as well as residency training in radiology, medical and surgical oncology, and bioengineering. Basic, translational and clinical cancer research all come together within the Cancer Supercluster to enhance cancer prevention, diagnosis, treatment and cure in humans and animals.

Laboratories include MRI, nuclear medicine, tissue archiving, image analysis, neuroskeletal oncology, tumor physiology, molecular pathology, pharmacology, PCR/sequencing, tumor immunobiology, cytometry, medical oncology, bioinstrumentation, microscopy and more.

“We will be focusing on molecular markers, targeted therapeutics and new therapies and devices,” said Dr. Ullrich. “The Supercluster creates the structure for basic scientists to have closer interaction with other basic scientists, and better collaboration with clinicians doing pre-clinical testing and clinical trials.”

CSU’s evolution as a leader in cancer research began in the 1960s with the establishment of the Department of Radiology and Radiation Biology. In the 1970s, the National Cancer Institute began to fund comparative oncology studies using spontaneously occurring tumors in animals as a model for human cancer. In the 1980s and 1990s, the oncology program grew into a multi-institutional collaborative effort to include M.D. Anderson Cancer Center in Texas, the Mayo Clinic, Harvard University, North Carolina State University, Duke University and others. In 1991, Colorado State University established the Programs of Research and Scholarly Excellence (PRSE) and the Radiological Health Sciences and Cancer Research PRSE was one of the first established.

“This will really enhance our ability to improve early detection with imaging, follow therapeutic outcomes, and create new biological and pharmaceutical treatment products for human and veterinary use,” said Dr. Ullrich. “Also, with biomarkers emerging we will have a focus on cancer prevention with more dietary approaches using a canine model for ‘proof of principle’ dietary studies.”

NeoTREX will serve as the collaborative entrepreneurial arm of the Cancer Supercluster to take those enhanced abilities from laboratory to clinical practice. Dr. Terry Opgenorth will serve as the chief operating officer for NeoTREX. He also will serve as COO of MicroRx, the business arm of the University’s first Supercluster focused on infectious disease research that was announced in February. Dr. Opgenorth joins the University after 20 years with Abbott Laboratories’ Global Pharmaceutical Research and Development organization where he most recently served as Divisional Vice President of Drug Discovery overseeing antiviral research, metabolic disease research and target-lead discovery research.

Colorado State’s innovative Superclusters are alliances of academic researchers, economists and business experts organized to address great global challenges, encourage collaboration and bridge the vastly different worlds of business and academia. Each Supercluster combines an academic component and a business component, which allows the public to reap benefits from the University’s unsurpassed research and greater acceleration of this research to market. At the same time the Cancer Supercluster was announced, the University also announced a third Supercluster in Renewable Energy.

For more information about the Cancer Supercluster, Colorado State’s cancer-related expertise or the structure of a Supercluster, visit www.superclusters.colostate.edu.
Solar Flares and Van Allen Belts, Researcher Thinks Beyond Earth’s Boundaries

In 2004, President George W. Bush announced a space initiative that would spend $12 billion on new space exploration during the next five years, develop a new manned exploration vehicle, launch manned missions to the moon between 2015 and 2020, and build a permanent lunar base as a stepping stone for more ambitious missions, including missions to the planet Mars.

“Longer missions in space seem inevitable, but we don’t fully understand the risks of galactic cosmic ray exposure to astronauts over extended periods of time,” said Dr. Susan Bailey, an Associate Professor in the Department of Environmental and Radiological Health Sciences. “Part of our work at Colorado State University is to enlighten greater understanding of those risks – of developing cancer later in life for example – so that NASA can make more informed decisions regarding acceptable risk levels, as well as look for new avenues of risk mediation.”

For Dr. Bailey, it’s an out-of-this-world turn in a career that was never really planned or imagined, but seemed to come together just the way it was meant to. What started at CSU as a bachelor’s degree in biological sciences, has led her on a journey of discovery to understand the world of extraterrestrial radiation – including the protection provided by the Van Allen Radiation Belts surrounding the Earth and the dramatic increases in radiation emitted during solar flares, the largest explosions in the solar system – and to relate it to her work in mammalian telomere function.

In 1976, after receiving her CSU degree, Dr. Bailey met a new professor on campus, Dr. Joel Bedford, and his PhD student, Jim Mitchell. She spent the next several years in Dr. Bedford’s laboratory where she was introduced to the world of radiation cytogenetics. After moving back to Los Alamos, New Mexico, and taking some time off to stay home with her children, Dr. Bailey was sought out as a technician at the Los Alamos National Laboratory by Michael Cornforth, a recent CSU graduate and PhD student of Dr. Bedford. With a flexible work schedule, Dr. Bailey embarked on a research project that required scoring chromosome aberrations in more than 10,000 cells and took years to complete. She also found herself in the same building as the research team that had just discovered the sequence of the human telomere, a discovery that would help shape her later research endeavors.

Seeking to return to graduate school, Dr. Bailey took advantage of the University of New Mexico School of Medicine Biomedical Sciences Program that had just launched a long-distance master’s program, which was extended to include a PhD at the request of its participants. Dr. Bailey finished her PhD in 2000. She had met Dr. Robert Ullrich in the meantime and began work characterizing telomere dysfunction in the repair-deficient background of the Balb/c mouse. She eventually joined Dr. Ullrich’s research team at Colorado State University, coming full circle (or orbit). Today, Dr. Bailey has a number of projects aimed at developing a better understanding of telomere function and DNA repair, especially as related to radiation exposure.

Humans (and all eukaryotic organisms) are composed of cells that have a nucleus containing DNA arranged as linear chromosomes. The physical ends of the chromosomes, or telomeres (literally meaning “end-part”) were first described almost 70 years ago based on the telomere’s end-protection function. Telomeres consist of highly repetitive DNA that serve to maintain chromosomal stability by protecting the ends of chromosomes from degradation and preventing chromosomal ends from improperly fusing.

Dr. Bailey’s research focuses on telomere function, damage and repair. Most recently, in a highly collaborative effort involving laboratories in the Netherlands and Columbia University in New York City, Dr. Bailey and Eli Williams, a PhD student in the Cell and Molecular Biology Graduate Program, published their work on the human telomere binding factor TRF2 in the journal “Nature Genetics.” In January, Dr. Bailey will start a new NASA grant investigating the role of telomeric proteins in the damage response to various types of radiation exposure.

“There remain many unknowns in space travel, some of which revolve around the questions we don’t know the answers to in radiation biology,” said Dr. Bailey. “NASA is helping us and other laboratories conduct critical basic research that is especially relevant to improved models of cancer risk for astronauts as they spend more time in space. Because radiation also affects people in their every day lives, we all need to better understand the risks as well as the benefits. The future of this Department as we further explore these questions is truly an exciting one and I am very proud to be a part of that.”

(Editor’s Note: Dr. Susan Bailey is the recipient of the 2007 Michael Fry Research Award. The award recognizes the contributions of a junior investigator to the field of radiation research. In July, Dr. Bailey presented the 2007 Michael Fry Research Award Lecture at the International Congress on Radiation Research held in San Francisco.)
From Particulates to Pottery, Environmental Epidemiologist Enjoys Diverse Challenges

Working in the New Mexico Department of Health, Heidi Krapfl has been exposed to a world where cultural impacts on environmental epidemiology are colorfully apparent. Not only is she helping to develop an environmental health tracking network, she also is studying the correlation between pollution and cardiac admissions, and working with New Mexico's lead poisoning surveillance program – and that's where things get colorful, beautiful, intricate and detailed in the form of Native American pottery where lead glazes are used and pose an environmental health concern.

Krapfl grew up in the Denver area and attended the University of Michigan where she received a bachelor’s degree in natural resources and environment, and double majored in French. She returned to Colorado and worked at the National Center for Atmospheric Research in Boulder before deciding to return to school for a graduate degree.

“I wanted to go for a graduate degree and I wanted to stay in the field of environmental health,” said Krapfl. “I thought epidemiology sounded interesting and thought ‘I can do that.’”

Krapfl said she liked the puzzle aspect of environmental health, trying to see where all the pieces fit together, and applying that to public health pictures. In 1999, she received her master’s in environmental health, concentrating in epidemiology. Drs. John Nu-ckols and John Reif were her co-advisors. Her first job was with the New Mexico Department of Health where she worked as an epidemiologist in the diabetes program. Her work there included improving the electronic surveillance program, and developing surveillance programs that looked at lower extremity amputation, end-stage renal disease, and end-stage mortality diabetes related to hospitalization.

“There is a misconception that diabetes is much worse in New Mexico compared to the rest of the United States, but it is mostly specific populations within the state that are at high risk, including the Native American population where people have about a three times greater risk of developing the disease than Caucasians” said Krapfl.

After six years with the diabetes program, Krapfl moved to the Department of Health’s Environmental Health Epidemiology Bu-

Krapfl said she liked the puzzle aspect of environmental health, trying to see where all the pieces fit together, and applying that to public health pictures.

“Heidi Krapfl

reau, providing her with a good opportunity to do a variety of projects within the field of environmental health and allowing her to further hone her skills and knowledge acquired at CSU. Her primary job now is working with a team to develop the New Mexico Environmental Public Health Tracking Network with the help of a grant awarded by the Centers for Disease Control. The purpose of the network is twofold, said Krapfl. First is to provide more data on public health and environmental outcomes, and second is to provide that information in a useable format including incorporating multi-layer mapping.

“The network will enable us to use the information we have gathered in a more practical way, helping to make informed decisions when it comes to public health policy and development,” said Krapfl. “The network also will be available to the public so they can see detailed information on air quality and water quality, ozone and particulate matter, and health parameters, and sort that by county.”

In addition, Krapfl is working on hospitalization admissions data as it relates to cardiac events, investigating the correlation between high particulate matter days and cardiac admissions. She also works with the lead surveillance program, tracking lead poisoning cases in New Mexico children. Poisoning in these children comes primarily from lead-based paint or the parent’s occupation. Native American children in the state are most likely exposed in homes where pottery is made using lead glaze.

“If there is no lead in the clear glaze, the pot is fired and the resulting finish is very cloudy,” noted Krapfl. “But with the lead in it, the finish is clear, so the lead glaze is preferred. For pots that are more decorative in nature, which describes most Native American pots, this isn’t an issue for the end user. But somewhere in the glazing process, the children are being exposed.”

Because lead poisoning in all children is a worry, the New Mexico Department of Health runs both a surveillance program and lead poisoning prevention program. The program benefits from the fact that all blood lead levels must be reported, allowing for intervention and follow-up education so families can learn how to reduce lead exposure to protect their children.

Krapfl enjoys the diversity in her work, never knowing what to expect day to day, but feeling like she has the tools from her graduate training at CSU to allow her to be successful at whatever comes her way.

“My work is a real hodge-podge and sometimes I’m doing things I didn’t expect to do, but I really enjoy that aspect of this field,” said Krapfl. “I’m always learning new things and stretching into new challenging areas, something that I love and I hope to keep doing here for many years to come.”
Internships, Work and Study Abroad Programs Open World for EH Undergraduate

Getting up close and personal with parrots, cockatoos, raptors and rats might not be everyone’s cup of tea, but it suits Jessica Axelrad just fine. As an intern at the Atlanta Zoo last summer, Jessica had the chance to experience life at Wildlife Theater, hone her public speaking skills, work with zoo veterinarians, and train some of the avian members of the theater’s winged cast.

It was just one of her real-world experiences outside of the classroom – experiences that are helping her to better define her career path and determine her next steps following graduation in the spring.

Axelrad, who is originally from Southern California, came to Colorado State University after just happening to glance at a recruiting brochure, one of many sent to her during her junior year in high school. On the first afternoon of her first visit to campus, she decided that she had found her academic home. During Ram Welcome, she attended a talk by Dr. David Gilkey and was intrigued by the possibilities environmental health offered.

“He talked about epidemiology, and I thought, wow, that sounds great,” said Axelrad. “Then he talked about toxicology, and I loved that, too, then veterinary epidemiology – there were so many great options that I just thought I would learn about as many of them as I could and figure out later on what I really wanted to do.”

In addition to her classroom experience, Axelrad has taken advantage of internship and volunteer opportunities, research work, as well as a study abroad program, to further enlarge her world of possibilities. She is in the University Honors Program and is a Hughes Undergraduate Research Scholar, conducting DNA cancer research in the laboratory of Dr. Robert Ullrich. She interned in 2006 at the Atlanta Zoo where she helped with the avian show, did the pre-show, worked backstage with the birds, brought birds out for wildlife encounters, and also worked with the zoo’s veterinary staff on preventive health care for the avian residents.

In January 2007, she traveled to New Zealand and Australia for a study-abroad program where she took full advantage of the countries’ natural beauty and abundant flora and fauna, further fueling her interest in avian medicine that was already heightened by her experiences in Atlanta. This summer, Axelrad interned with the USDA Food Safety Inspection Service working with veterinarians inspecting slaughterhouses in Southern California, including pig, duck, chicken and cattle facilities.

“I think that what was a surprise at first was the level of inspection at each of the facilities,” said Axelrad. “Every slaughterhouse we went to had their own veterinarian who monitored all of the animals coming in, looking for disease and other problems. The internship was an in-depth education in the way meat is processed, including the kosher processing of meat, and in seeing how each and every part of every animal is used. It’s not something that I could see doing for my career, but it was an interesting experience.”

Axelrad also works at PetCo where she was the avian specialist, but is now looking to focus on reptiles, further broadening her experience. She is a volunteer with the Rocky Mountain Raptor program, a member of Toastmasters and has been an ambassador with the University’s Admissions Office, a Hebrew tutor and a camp counselor. She is a member of Hillel and her travels also have included a heritage trip to Israel.

Following graduation from Colorado State University in the spring, Axelrad hopes to attend veterinary school, applying to CSU as well as the University of California-Davis. She isn’t sure yet what she’ll pursue once in veterinary school, though avian medicine, surgery, equine medicine, and public health all have an appeal.

“Once I get in, then I’ll worry about where I’ll be going next,” said Axelrad. Whichever direction she does decide to go, Axelrad, with all her worldly experiences, is sure to find just the right cup of tea to suit her tastes.

Axelrad presenting at the Atlanta Zoo avian show.

Axelrad with Maji, an African Fishing Eagle.

Axelrad with Sydney, a Sulpher-Crested Cockatoo.
ERHS Welcomes First Medical Physicist

Dr. Joseph “Fred” Harmon has joined the Department of Environmental and Radiological Health Sciences, coming to Colorado State University from the Medical University of South Carolina’s Roper Saint Francis Hospital where he was the Chief of Medical Physics.

“While I enjoyed my time in South Carolina, I missed teaching and research and Colorado State offered a wonderful opportunity to do both of these as well as work in a unique clinical setting,” said Dr. Harmon. “I also was looking forward to coming back to Colorado and enjoying all the natural beauty the state has to offer.”

At Colorado State, Dr. Harmon works in clinical support at the James L. Voss Veterinary Teaching Hospital, as well as contributes to existing research programs while developing his own areas of interest, and teaching classes focused on the physics of radiation therapy and the physics of diagnostic imaging. The addition of Dr. Harmon to the ERHS faculty is key to developing the medical health physics program the Department would like to offer to students in its graduate health physics program.

“This is an especially exciting time to be coming to the University because of the new technology and facilities under development at the Veterinary Teaching Hospital, including the new Varian Trilogy linear accelerator and a new PET/CT that will enable dramatic improvements in both diagnostic imaging and radiation therapy delivery,” said Dr. Harmon. “The new equipment will allow us to incorporate what’s known as ‘dose painting’ where we can more effectively focus radiation on tumors while minimizing radiation to healthy tissues. The next few months will be exceptionally busy as we install and test the Varian Trilogy which will be fully operational by November.”

In addition to keeping up with the VTH’s state-of-the-art technology, Dr. Harmon is working with other VTH researchers to design and build immobilization devices that allow veterinary patients to be placed in exactly the same position for highly precise radiation treatments such as IMRT and radiosurgery. He plans to use the on-board imaging devices of the Trilogy accelerator to track tumor response and tumor motion due to patient breathing.

“Imaging and treatment delivery are becoming highly integrated and CSU is in a unique position to be on the cutting edge of this technology,” said Dr. Harmon, who also plans on submitting several research grants in the spring and hopes to be able to support a graduate student.

Dr. Harmon is a graduate of The Citadel in South Carolina, where he studied physics. He was commissioned as an officer in the United States Air Force after graduation and entered the Air Force Institute of Technology where he earned his master’s degree in nuclear science with an emphasis on nuclear weapons effects. His first assignment was at the Air Force Technical Applications Center in Cocoa Beach, Florida, where he was part of a team that monitored nuclear test ban treaties primarily through air monitoring. He then moved to Colorado to teach physics at the Air Force Academy in Colorado Springs.

From there, Dr. Harmon attended the University of Florida where he received his PhD in medical physics. He was then assigned to Travis Air Force Base in California at the David Grant Medical Center where he worked in both radiation therapy and diagnostic imaging physics and taught physics to diagnostic radiology residents. After leaving California, he served as Chief of Medical Physics at Keesler Air Force Base in Mississippi for several years and then wrapped up his Air Force career with a final assignment at the Air Force Academy where he worked as the first full-time medical physicist at the USAF hospital and also served as an adjunct instructor in the Academy’s Physics Department. After 21 years in the military, he retired in 2003 and returned to South Carolina serving as the Director of Clinical Physics in the Radiation Oncology Department at the Medical University of South Carolina. Later, he accepted a position at Roper Saint Francis Hospital in Charleston, South Carolina as Chief of Medical Physics. He joined the faculty at Colorado State in January 2007.

“This is an especially exciting time to be coming to the University because of the new technology and facilities under development at the Veterinary Teaching Hospital, including the new Varian Trilogy linear accelerator and a new PET/CT that will enable dramatic improvements in both diagnostic imaging and radiation therapy delivery.”

– Dr. Joseph “Fred” Harmon
Congratulations to Dr. Gilkey: Outstanding Faculty Member

Undergraduate students in the Department of Environmental and Radiological Health Sciences selected Dr. David Gilkey for the Outstanding Faculty Mentor Award presented at the ERHS graduation ceremony in May.

For many ERHS undergraduate students, they first learn about careers in environmental health from Dr. Gilkey when he presents at seminars and classes, particularly in the Human Health and Environmental Perspectives class. His enthusiasm for the field, and related areas of study, is infectious. Asked how they became interested in environmental health, many undergraduate students reply with, “Well, I heard Dr. Gilkey speak and I decided I wanted to major in environmental health.”

Dr. Gilkey is the Director of Undergraduate Education for the Department and works to ensure that the undergraduate program meets the highest quality education standards in the country. He works closely with students and also focuses on curriculum content and nontraditional teaching methods. He works cooperatively with other faculty members to develop instructional technology tools that enhance the educational experience of students both on and off campus. Dr. Gilkey is an Associate Professor in the Department of Environmental and Radiological Health Sciences, and is a 2002 graduate of the Department, receiving his PhD in environmental health.

Correction

In the Fall 2006 edition of Emitter Magazine, Drs. Yuanlin Peng and Paula Genik were erroneously referred to as Research Associates in the Department of Environmental and Radiological Health Sciences. Dr. Peng is an Assistant Professor and Dr. Genik is a Research Scientist II.

ERHS Calendar

October 5-7 – Homecoming and Family Weekend (www.colostate.edu).

October 5 – Honors 50th Anniversary Lecture Presents Dr. Bernard Rollin, “Science and Ethics,” 7 p.m., Lory Student Center Theatre.

December 14 – Colorado State University Fall 2007 Commencement (www.colostate.edu).

Health Physics Society Meeting

Faculty and seven students from the graduate program in health physics the Department of Environmental and Radiological Health Sciences attended the 52nd Annual Health Physics Society Meeting in Portland, Oregon, July 8-14. Five health physics graduate students obtained travel grants for the meeting. The CSU student branch of the society raised money to provide logo polo shirts for all of CSU health physics alumni attending the meeting. Graduate students Evan Crawford, Deidre Elder, Ken Walter, and Rui Zhang presented at the meeting. CSU also sponsored a CSU Health Physics Alumni reception on July 10 prior to the awards banquet.

The Pendulum at the Health Physics meeting.
Gifts to the Department of Environmental and Radiological Health Sciences are used to fund undergraduate and graduate scholarships, support start-up and established research programs, and provide discretionary funds to the department head that are used where most needed. If you would like to make a donation in support of the Department’s needs and goals, please complete the form below and return with your gift. If you have any questions on making a donation to the Department, please contact Paul Maffey, Development Director for the College of Veterinary Medicine and Biomedical Sciences, at paul.maffey@colostate.edu or (970) 491-3932. Please note that you also may make your donation at our secure online site as listed below.

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