

Department of Chemical Engineering Newsletter

Academic Year 2011-2012

New Faculty Spotlight: Dr. Sunho Choi

Dr. Sunho Choi joined the Department of Chemical Engineering as an assistant professor in September 2011. The rapid growth in education and research and the department's focus on nano, energy, and environmental research areas are factors that influenced Dr. Choi's decision to come to Northeastern. He believes it was a perfect match for him, his family, and his work.

Dr. Choi received his B.S. degree in materials science and engineering from Hanyang University in Korea in 2000 before going to the University of Minnesota (UMN) to pursue his doctoral degree. At UMN he worked on making novel nanocomposite membranes for gas separation and proton-exchange membranes for fuel cells, such as those for H_2 separation from CO_2 and other gas mixtures targeting the pre-combustion CO_2 capture.

Upon receiving his Ph.D. in 2008, Dr. Choi went to the Georgia Institute of Technology for his postdoctoral research where he spent three years before coming to Northeastern. At Georgia Tech he continued to work in the same research area and his work was focused on developing novel adsorbents and heterogeneous catalysts with tailored nanostructures for the application of post-combustion CO_2 capture and air capture, as well as biomass conversion for fuel production.

Dr. Choi hopes to contribute to the department's advanced materials research by introducing new aspects

including the use of nanostructured materials for the energy and environmental applications. He also hopes to extend his research theme and specialties toward

broader areas of clean energy research, including the development of novel nanostructured materials for the production/purification/storage of renewable energy such as hydrogen. Based on the fundamental understanding of nanostructured frameworks and their hybrids, Dr. Choi's group is developing novel strategies for catalysis and advanced separation, which could provide breakthrough technologies for clean and alternative energy employment. For instance, one of the projects within the research group includes the development of advanced hybrid adsorbents that could find its applications in CO_2 capture from the environment.

In the fall of 2011, Dr. Choi taught the undergraduate level course Conservation Principles in Chemical Engineering. Although he has teaching experiences from previous institutions, he experimented to find the best way to provide fundamental understanding of the key concepts and basic principles of the course...Continued on page 2.



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Letter from the New Chair

Welcome to the Department of Chemical Engineering at Northeastern University (NU) - the private university which receives more undergraduate applications annually than any other university in the United States (earning NU the title of the most applied-to private university in the United States). We offer degrees at all levels (Bachelor of Science, Master of Science and Doctor of Philosophy) and are internationally renowned for high quality classroom-based education in conjunction with industrial work experience. Our top-rated (and one of the nation's largest) Cooperative (Co-op) Education program was one of the first in the country and the Chemical Engineering Co-op program places students in over 55 companies spanning the areas of consumer products, plastics, biotechnology, nanotechnology, alternative energy, and petrochemicals, to name a few. We even place students in International Co-op locations in the UK, France, Switzerland, China, and Vietnam. It is not hard to see why we have been ranked four times as the Best Internship/Career Service University by the Princeton Review.

Our undergraduate program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. ensuring that our program meets the quality standards established by the profession of Chemical Engineering. Our award-winning undergraduate student chapter of the American Institute of Chemical Engineers (AIChE) is very active in many outreach programs, such as the ChemE Car competition. Our graduate program is very interdisciplinary and offers students opportunities to work with outstanding faculty to attain research experience and achieve their career goals in a variety of sub-fields of Chemical Engineering.

I invite you to explore NU Chemical Engineering Department website and find out why Northeastern has been listed among the top "up-and-coming national universities" by the U.S. News and World Report (hyperlink U.S. News and World Report to: <http://colleges.usnews.rankingsandreviews.com/best-colleges/rankings/national-universities/up-and-coming>).

Go Huskies!

Thomas J. Webster

Dr. Thomas J. Webster
Chair and Professor



Northeastern

New Faculty Spotlight: Dr. Sunho Choi

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Throughout the semester, he tried to develop his own way of teaching and find the perfect balance between efficiency, personal style, and students' needs. He implemented different methods of teaching such as the traditional chalk talk and power point slides to find the best way to interactively teach. From this experience, Dr. Choi believes he has learned a lot about teaching and significantly improved his skills in the field. Since his first class of teaching and meetings with students, he advised all of his students to try and "taste" both fields of academia and industry during their undergraduate career to find what it is they truly "love". For instance, students "could utilize two of the co-op opportunities in research labs at Northeastern and in companies that would help them to decide on what they want to do in the future with a minimum amount of trial

and error", he says. Dr. Choi's door is always open to anyone who is struggling with these life-depending choices.

In the future, Dr. Choi hopes to develop a new course in polymer science to further expand the current educational course list. As for the role of an advisor, Dr. Choi believes students will learn best through their own experiences, trial and error, and failures and successes just as he did when he was a student. He hopes to be an advisor who would provide the big picture and would help his students to become self-standing and independent researchers upon graduation. He also hopes that his students would be capable of designing and solving scientific questions with unique engineering approaches whether it will be in academia or industry. He expects students who join his group to be self-motivated and ready to learn and experience the fundamentals "beyond

the buttons". Currently, the research group already collaborates with other departments at Northeastern, such as Mechanical & Industrial Engineering and Electrical and Computer Engineering. They also have a mutual agreement with Dr. Mukerjee's lab in the Department of Chemistry and Chemical Biology to allow students of both groups to freely use the instruments and characterization tools in each lab in addition to research-wise collaborations. Dr. Choi is open to any interested undergraduate students who is seeking research opportunities. Also, there is the possibility for the group to grow by two or more graduate students this upcoming academic year.

When not researching or teaching, Dr. Choi spends most of his free time with his family. He enjoys swimming, playing soccer, and visiting libraries and museums with his kids. ■

New Faculty Spotlight: Dr. Richard West



The Department of Chemical Engineering welcomed Dr. Richard West in September 2011 as an assistant professor. Dr. West was attracted to Northeastern for the enthusiasm and entrepreneurial spirit amongst the

faculty and students, impressive upward trajectory, and for its location in one of the most academic cities in the US, Boston.

Dr. Richard West received his BA and MEng degrees in chemical engineering from the University of Cambridge, UK, in 2004. He was among the first cohort to spend a year at the Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, under the University of Cambridge-MIT undergraduate exchange programs. He returned to MIT for a semester of core graduate courses in chemical engineering at the start of his PhD, which he was pursuing at the University of Cambridge. After completion of his doctoral degree, Dr. West returned to MIT once more, this time as a postdoctoral research associate. He worked with Prof. William Green to develop detailed kinetic models and the tools used to create them. In 2011 he moved across the river to Boston, starting the Computational Modeling in Chemical Engineering group at Northeastern University.

The current research focus of Dr. West's

group is on multi-scale computational modeling with an emphasis on chemical reaction kinetics, something completely new for the Department of Chemical Engineering at Northeastern. A major thrust of the research is developing software that automatically builds predictive kinetic models for complex reacting systems. One of the current projects deals with investigation of the pyrolysis of bio-oil, and another one is about making next-generation bio-fuels. Teaching the computer to automatically locate transition states for unknown chemical reactions is also one of the present projects within the group.

Dr. West is looking for big-picture ambition and creativity in designing and steering of projects from graduate students. At the same time, he likes to help his students by not only giving overall guidance but also to help with the details. "We are all part of the same team, and I expect my students collaborate with each other and me whenever they get stuck on something", he says.

Having studied under very different academic styles at the University of Cambridge and MIT, Dr. West hopes to draw on the strengths of both systems to benefit the education of undergraduate students here at Northeastern. In addition to being in academia, Dr. West worked briefly at a large traditional oil and gas company and a small start-up innovation consultancy. He believes that in understanding how different these environments are and how chemical engineering can be applied in all of them would help him to prepare students for the huge variety of careers that lie before them

upon graduating from Northeastern.

This past fall '11, Dr. West taught a graduate level course on chemical engineering thermodynamics and is looking forward to teaching undergraduate kinetics this upcoming year. In the future, he plans to develop a course on computational methods which he believes would help all research students, even those with the most experimental of the projects. As for the undergraduate program "it would be fun to teach some product and process innovation", he says.

With the focus on computational modeling, Dr. West anticipates his group working with many groups whose work is experimental. The group is already working towards proposals with the Northeastern University Center of Renewable Energy Technology (NUCRET) in the Chemistry Department on next-generation batteries, with groups in the Mechanical Engineering Department on sustainable pyrolysis processes and combustion fundamentals, and with Professors Goluch and Choi in the Department of Chemical Engineering. They are also in contact with Computer Engineering Department and continuing collaboration with MIT and ENSTA (Ecole Nationale Supérieure de Techniques Avancées) ParisTech in France.

In his free time Dr. West enjoys food, photography, and music. He plays the violin in the Mercury Orchestra, the Lowell House Opera, and assorted chamber music groups. He also tries to keep up with the best of British television. ■

Dr. Thomas Webster Named New Department Chair

On August 29th, Thomas J. Webster started as the next Department Chair of Chemical Engineering at Northeastern University. Dr. Webster was attracted to the Chemical Engineering Department and Northeastern University due to a momentum and energy level not seen in many other universities. A few of the exciting statistics highlighting Northeastern's momentum are highlighted in this Newsletter. He is excited to be a part of such talented faculty and a thriving University to lead chemical engineering into what promises to be an exciting future.

Dr. Webster's degrees are in chemical engineering from the University of Pittsburgh (B.S., 1995) and in biomedical engineering from Rensselaer Polytechnic Institute (M.S., 1997; Ph.D., 2000). His research explores the use of nanotechnology in numerous applications. He has completed extensive studies on the use of nanophase materials to regenerate tissues and has graduated/supervised over 109 visiting faculty, clinical fellows, post-doctoral students, and thesis completing B.S., M.S., and Ph.D. students. To date, his lab group has generated over 9 textbooks, 48 book chapters, 306 invited presentations, at least 403 peer-reviewed literature articles, at least 567 conference presentations, and 32 provisional or full patents. Some of these patents led to the formation of 9

companies. His research on nanomedicine has received attention in the popular press including MSNBC News, NBC Nightly News, PBS DragonFly TV, and ABC Nightly News. His work has been on display at the London and Boston Science Museums. He is the founding editor-in-chief of the International Journal of Nanomedicine (the first international journal in nanomedicine which in five years has achieved an impact factor of 4.97), serves on the editorial board of 15 additional journals, has helped to organize 22 conferences emphasizing nanotechnology in medicine, and has organized over 53 symposia at numerous conferences emphasizing biological interactions with nanomaterials. He also recently chaired the 2011 Annual Biomedical Engineering Society (BMES) Conference and has organized numerous symposia for AIChE, IEEE, MRS and ASME Annual Meetings. He has received several honors including, but not limited to: 2002, Biomedical Engineering Society Rita Schaffer Young Investigator Award; 2003; 2005, American Association of Nanomedicine Young Investigator Award Finalist; 2005, Coulter Foundation Young Investigator Award; 2006, Fellow, American Association of Nanomedicine; 2010, Distinguished Lecturer in Nanomedicine, University of South Florida; 2011, Outstanding Leadership Award for the

Biomedical Engineering Society (BMES); and Fellow, American Institute for Medical and Biological Engineering (AIMBE, representing the top 2% of all medical and biological engineers).

Dr. Webster and the entire Chemical Engineering wish to express their sincere gratitude to Dr. Shashi Murthy for serving as the Acting Chair of the Department of Chemical Engineering before Dr. Webster was hired. ■

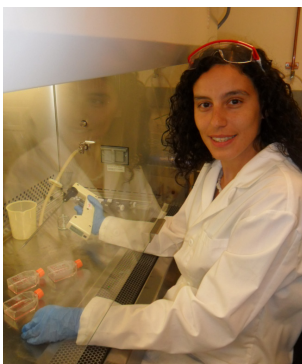
Chair Meets ChemE Alumnus



On September 20th, Prof. Webster visited Lillian Stone in San Diego who graduated from NU in ChemE in 1946. Lillian talked about how different the campus was back then and what it was like to go to college during World War II. She has many fond memories of NU and was excited to learn that close to half of the NU ChemE faculty are women today. ■

Graduate Spotlight: Selena Di Maio

Selena is originally from La Spezia, a small city on the Northwest coast of Italy. She earned her BS and MS in Chemistry at the University of Bologna, Italy, where she stayed on as an RA in the Nanobiotechnology field in the Biochemistry Department.



While at the University of Bologna, Selena decided she wanted to see new things and experience working and living abroad. She was attracted to the city of Boston, MA, and by the wide research opportunities offered at its universities. She joined Northeastern University in fall 2008 to pursue her Ph.D. and is currently working under the advisement of Dr. Rebecca Carrier.

Selena's research focuses on studying the effects of ingested lipids on the dissolution and absorption of poorly water-soluble drugs orally administered. Her interests are in vitro experimental investigations and mathematical modeling of the dissolution and absorption processes of hydrophobic drug molecules in the presence of lipid digestion. She has published a research paper titled, "Pathogenic Mutations Shift the Equilibria of Alpha-Synuclein Single Molecules Towards Structured Conformers" in the European Journal of Chemical Biology, ChemBioChem, in 2009 and presented her work "Effects of Lipids on Dissolution of Poorly Water-Soluble Drugs" at the 2011 IEEE 37th Annual Northeast Bioengineering Conference. She has also published a review paper titled, "Gastrointestinal Contents in Fasted State and Post-Lipid Ingestion: In Vivo Measurements and In Vitro Models for Studying Oral Drug Delivery" in the Journal of Controlled Release in 2011. She has given two oral presentations at the American Institute of Chemical

Engineers (AIChE) Annual Meetings in 2010 and 2011, and presented at several conferences including the SBE's 6th International Conference on Bioengineering and Nanotechnology 2012, Controlled Release Society Annual Meeting 2011, Northeast Bioengineering Conference 2011, Northeastern University Research and Scholarship Expo 2011, and 13th Annual Northeast Student Chemistry Research Conference 2011.

Selena has been enjoying the research opportunities that are offered in the Chemical Engineering Department and in the lab, due to several collaborations the department has with other universities in the region.

For fun Selena enjoys outdoor activities with her friends which includes kayaking, swimming, biking, hiking, and playing soccer; but her favorite hobby is digital photography. After graduation, she plans to travel to other places of the world and continue doing research. ■

Undergraduate Spotlight: Thomas Dusseault (Class of 2012)

In 2012 Thomas "Tom" Dusseault received a National Science Foundation (NSF) Graduate Research Fellowship, a fellowship that recognizes outstanding students and will help Tom to pursue his doctoral degree at Stanford University starting this fall 2012.

Tom, as he is official called, is originally from Norfolk, Massachusetts. He decided to attend Northeastern University to gain industrial work experience through the co-op program. The decision to become a chemical engineer formed when he was in high school, where he enjoyed the sciences such as math, physics, and chemistry; and was looking for a way to combine all three. While he was not entirely confident in the choice of his major, his decision solidified after participating in his first co-op. Tom says, "that's when I realized that an education in chemical engineering was giving me the versatility to work in almost any field I could imagine rather than forcing me to sacrifice some of my interests, chemical engineering was giving me the power to deepen and expand upon them".

During his educational career, Tom completed two different internships. The first one was at Nantero, Inc., a nanotechnology company developing a new type of high-density, nonvolatile random access memory based on carbon nanotubes. His second internship was in Lexington, MA, where he worked at 1366 Technologies, a start-up photovoltaic company. There, Tom worked on an advanced surface texture that increases the light capturing capability of silicon solar cells. At this co-op, he was able to utilize his classroom education and learn some incredibly practical skills, like how to make custom machine parts with a mill. The most important thing Thomas learned at 1366 was that engineering could be an outlet for creativity.

In addition to his coop experience, Tom worked in the Northeastern Nanomagnetism Group with Professor Laura H. Lewis. He assisted post-doctoral researchers and graduate students with two projects on magnetic materials. For the first project Tom designed and built a high-temperature solenoid to assist with the development of rare-earth-free permanent magnets. For the second project he studied the thermodynamics



of magnetostructural phase transitions in iron-rhodium alloys for use in sensors and other devices. Tom was thrilled to gain this academic research experience and through it he learned what it takes to do good research and to become a successful graduate student.

As for his educational experience at Northeastern, Tom enjoyed physical chemistry class for its bizarreness, and to explain his passion for thermodynamics he quotes Dr. Shashi Murthy's words, "the fact that you can take a piece of paper and a pencil and figure out how much work you can get out of an engine... that amazes me." He was an

active member of AIChE, Omega Chi Epsilon, and three tutoring organizations. About the university and the program in general, Tom states, "despite the fact that Northeastern is growing into a world-class research institution, the chemical engineering professors maintain a focused, accessible, and personal approach to undergraduate education".

In the future, Tom wants to work in both research and industrial areas of chemical engineering, "research leads to the technological advancements that help drive our economy, and engineers that understand academic research are essential for the transfer of innovations from the lab to the industrial scale", he says.

Industrial experience on co-op was instrumental in Tom's decision to attend graduate school right after receiving his B.S. degree. He had the opportunity to learn from Ph.D.'s who seamlessly combined creativity, business savvy, and the ability to lead research projects to invent new and relevant technology. Tom believes that reaching this type of success is a goal that Northeastern has prepared him to pursue and he could attain with diligence in graduate school. Tom hopes to work in the field of electronic materials and nanotechnology, with anything from photovoltaics to nanomaterials for thermal management, a type of research that's important for the promotion of smarter, more environmentally and economically friendly energy consumption.

Tom is now off to an exciting journey starting with a fifteen-day road trip across the country to Stanford where he will begin a chemical engineering Ph.D. program in September. ■

ChemE Car Wins!



Pictured L-R: Layal Ismail (left), David Hurt (middle), and Ben Langhauser (right), getting ready for the race.

Congratulations to the NU ChemE Car team!

The NU ChemE Car team won the first place in the Northeast Regional AIChE Chem-E Car competition against six other colleges from the region on March 18, 2012, at the University of New Haven. Their new innovative car design also helped them win the poster competition for the most creative car. This recognition wins the team a chance to compete at the national ChemE Car competition to be held at the Annual AIChE Meeting in October, Fall 2012, in Pittsburgh, Pennsylvania.

Team Members:

Aaron Lamoureux ('12), Ben Langhauser ('14), Carly Gajewski ('15), David Hurt ('16), Eric Corti ('14), Layal Ismail ('15), Theji "Kasun" Jayaratne ('16), Tom Gillooly ('14) and Ya Xing "Amy" Zhu ('14) ■

Congratulations to our 2011/2012 ChE Degree Recipients

Bachelor of Science

Graduating Summa Cum Laude

Matthew Dinitto
Thomas Dusseault
Timothy Erps
Anthony Fusco
Lauren Gianino
John Henske
Aaron Lamoureux
Paul Nadenjian
Meghan McGill
Nicholas Mitra
Emily Nelson
Peter Ries
Jason Rossi
Laura Rushford
Daniel Shea
Aaron Wolfe

Graduating Magna Cum Laude

Alessandro Jon-Michael
Andrew Bosworth
Emma Chory
Mitchell Cooper
Stephanie Demarino
Stephen Hobson
Megan Johnson

Daniel Kaplan
Madelyn Kurkij
Yi Pui Luk
Zara Mendonca
Jessica Miller
Emma Neirinckx
Erica Pare
Melissa Roth
Stephen Strassburg
Vanessa Tomchik
Hillary Tracy
Matthew VanOudenaren
Joshua Yetman

Graduating Cum Laude

Brian Beauvais
Kenneth Bernstein
Steven Byrd
Ryan Cassidy
Calvin Chan
Gregory Chester
George Gram
Neil Johnson
Robert Marshalewski
Michelle McNeilly
Diep Nguyen
Michelle Olson

Murillo Silva
Jessica Statkus
Maria Stevens
Tito Vann
Samantha Wallner
Daniel Yung

Graduating

Kurt Banker
Kristin Belnick
Elizabeth Doucakis
Ross Dworet
Diego Flores
Matthew Huntley
Richard Jackson
Gopinath Kunasekaran
Alana Lacey
Edward Laird
Alicia Leece
Selena Li
Janae Miller
Judy Nguyen
Joseph Paolino
Phong Pham
Francis Piccirillo
Mario Sinani
Britta Wallstrom

Doctor of Philosophy

Bing Sun

Integrating RHEED-TRAXS and Molecular Beam Epitaxy for Real-time Compositional Control of Functional Oxide Deposition Processes

Advisor: Dr. Katherine Ziemer

Master of Science

Nicholas Mitra

Hillary Tracy

NU AIChE

The group has been up to it's old tricks again this year with ChemE Car and the AIChE conference, and more!

Check out their website for more information.

<http://www.coe.neu.edu/Groups/aiche/>



Graduate Spotlight: Sean Kevlahan



Sean Kevlahan received his B.S. degree in Biochemistry from Hofstra University in Long Island, NY, before joining Northeastern University to pursue a Ph.D. in Chemical Engineering. Earlier this year, 2012, Sean successfully became a

Ph.D. candidate with his thesis titled, "Label-Free Microfluidic Isolation of Intestinal Stem and Progenitor Cells from Native Rat Tissue". He works under the co-advisement of Professors Shashi Murthy and Rebecca Carrier. His thesis combines novel microfluidic cell isolation techniques and intestinal systems. He hopes that his work will help with cell sorting and cell isolation where currently fluorescent and magnetic labeling methods are used. Sean is developing a label-free approach for the isolation of stem and progenitor cells from native rat tissue, a method that will allow rapid culture and elution of target cells for further studies.

Sean has presented his work at several conferences including MicroTAS in Seattle in 2011 and at the Biomedical Engineering Society (BMES) meeting in Connecticut in 2011. He was also an invited guest speaker at the Termis, Tissue Engineering & Regenerative Medicine International Society Conference. In the future, Sean wants to work in industry towards science translation trying to bring research into the developmental stages closer for real life applications.

Sean's favorite thing about graduate school is the freedom which opens room for creativity. In his free time he enjoys hiking and cycling. ■

Taylor Dickman (Class of 2013)



Northeastern senior, Taylor Dickman, has been selected as a recipient of one of the AIChE Donald F. and Mildred Topp Othmer National Scholarship Awards for the 2012-2013 academic year in the amount of \$1,000 to assist in meeting the costs of her chemical engineering education during the coming year.

Taylor is originally from a suburb of Buffalo, called Hamburg, where she lived her entire life before moving to Boston. When she was still in high school, she came to Northeastern to visit her cousin who was studying here at the time and instantly fell in love with the campus.

While still in high school, Taylor attended a girls' camp for science and mathematics where her interest in engineering ignited for the first time. She was good in math and science, and in many other things as well, but Taylor states "I really had no idea what I wanted to do until that camp focussed me towards the possibilities for females in engineering". Taylor has decided to pursue chemical engineering due to its versatility and broadness, and it combined all the different sciences she was interested in.

Taylor has spent six months at E Ink Corporation in 2010 where she worked on developing electrophoretic ink for

the screen setter in eBook readers (e.g. Kindle, Nook, etc.). Her main project was to optimize conditions for the surface functionalization of pigments that are used to make up the eBook readers' screens.

While she was nervous going in to her internship at first, she feels like it's more "learn as you go process" and no matter how many classes she took, or how much background she had on a specific subject, the actual training at the job was the vital element for her learning and great performance at this coop.

Taylor's second coop was at Firefly Bioworks, a small five person start up company, where she spent eight months. At this coop, she got to do particle synthesis used for diagnostic assays with microRNA. Aside from lab work, Taylor was also responsible for many other things such as: purchasing materials, contacting representatives, communicating with investors and potential customers. At this coop, Taylor realized how much she enjoys start-up environments due to their flexibility, business, and lots of room for creativity. She found it to be exciting, new, and sometimes stressful but a very rewarding experience.

Her final co-op with Bind Biosciences, another start-up company specializing in nanomedicine, started in January 2012 where she continues to work part time this summer to gain more experience in the broad world of chemical engineering. Taylor works in the formulation development group with new chemotherapy drug candidates and specifically optimizes the process of direct drug delivery to the tumor-infected organs. Optimization includes changing about twenty different variables to get to the best nanoparticle size and composition.

These drugs would traffic straight to the tumor, connect to it and release the drug right near it instead of coursing off through the body. About her experience Taylor says, "this company has an early start-up environment, but it's more structured and I really love it". In the future, Taylor would like to find something with the perfect balance between structure and flexibility.

Working in three completely different fields during her coop experience made her realize that she wants to explore more by working in industry first. Nevertheless, she enjoys the research environment of small groups, lots of lab work and experimentation, so graduate school is one of the possibilities after graduation.

Over her time at Northeastern, Taylor has received numerous awards including, Honors Early Research Grant Award, Nabil Morris Award, Provost Undergraduate Research Award, AIChE National Sophomore Academic Excellence Award, and President's Award for Outstanding Scholarship. She would like to acknowledge Professor Dimilla for her first research position. Taylor is inspired by Professor Ziemer who worked in industry for seven years before getting her doctoral degree, and whom Taylor always seeks advice for future career plans. Taylor has also worked at Professor Carrier's lab and she is grateful for her kindness and support while she was applying for fellowships last year.

Taylor enjoys movies and musical theater in her free time. She also enjoys working with kids and works at a day care center on campus. ■

Linda Kirchner came to Northeastern University as an international exchange student through the German Academic Exchange Service, DAAD



Fellowship, from the German government to work in Dr. Carolyn Lee-Parsons' lab from February to the end of August 2012. She received her B.S. and M.S. in Plant Biotechnology from the Gottfried Wilhelm Leibniz Universität Hannover in Hannover, Germany. Her research project, which is funded by a Seed Grant from the Massachusetts Catalyst Program, involved aspects of improving the production of biofuel from microalgae and her specific goals were determining the sequence of a gene encoding an enzyme that is important for biofuel production and designing optimum expression system in microalgae.

Linda enjoyed her stay at Northeastern because of the various indoors and outdoors activities on its beautiful campus. She also liked the organized and well-maintained laboratories of Dr. Lee Parsons

International Exchange

and Dr. Cram, as well as the people with whom she worked.

She speaks of Boston as "a very welcoming and international city with many interesting historical sights". She says the size of Boston is almost the same as her home city Hannover, Germany, so it was easy for her to orient and find her way around. She also liked the scenery and sports-oriented environment Boston offers. Linda has learned a lot about the culture, mentalities, work ethics and lifestyles of the people who live and work here. She developed new perspectives, which she believes will help in her personal and professional future. ■

In the summer of 2012, **Dr. Claudiu Lonescu** from Paris visited Professor Podlaha's lab and explored the electrodeposition of thin films containing CoW with Cr particulates and similarly, NiWCr, using a Hull cell approach. His work was part of collaborative grant via the European Union



to participate in an exchange program.

Dr. Lonescu is currently a doctoral candidate at the École Centrale Paris in the Department of Chemical Engineering.

Dr. Lonescu always wanted to see how research is conducted outside of Europe; especially how it is done in the United States, so his visit to Northeastern was very insightful and an interesting experience for him. He found Northeastern a well-organized institution, which offers a lot of facilities to its students, making it easier for them to integrate their skills on the job market. While working in Dr. Podlaha-Murphy's lab, Dr. Lonescu met a multinational, young and dynamic team. He also had a chance to see the work of other research teams such as in Professor Kate Ziemer's and Professor Sinan Muftu's labs. He was very pleased to see that they are searching to build up multidisciplinary projects in order to improve research work.

One of Dr. Lonescu's hobbies is history, so he enjoyed a visit to one of most important and emblematic towns for the United States history. During this visit, Dr. Lonescu had the opportunity to enrich his scientific and intercultural background through the wonderful people he met and beautiful places he visited. ■

Department News and Awards

Faculty

Prof. Paul DiMilla received the Professor of the Year award at the 2011 NU ChE Annual Awards Ceremony.

Associate Prof. Rebecca Carrier received two grants from the National Institutes of Health (NIH). One grant in the amount of a \$1.8M to be used on a project to gain quantitative mechanistic insight into and predictive capability of how lipids in the GI tract impact compound (drug, nutrient, lipid) absorption and the other grant in the amount of \$430K, an R21 project, to determine the "Impact of Lipids on Intestinal Mucus Transport and Structural Properties".

Assistant Prof. Edgar Goluch was awarded a \$174K National Science Foundation (NSF) grant to use nanofluidic electrochemical detection and optics as an

improved method for studying individual bacterial cells.

Prof. Laura Lewis received a \$155K NSF grant to use high-anisotropy L10 materials to create rare-earth-free permanent magnets materials and a \$3.5M DOE grant to create the same materials as a part of the Rare Earth Alternatives in Critical Technologies. Prof. Lewis was also featured in the National Geographic article titled "While Rare-Earth Trade Dispute Heats Up, Scientists Seek An Alternatives".

Associate Prof. Carolyn W. T. Lee-Parsons received a \$40K grant from The Massachusetts Clean Energy Center as a part of Catalyst Program for clean energy research projects. Dr. Lee-Parsons was one of three awardees.

Prof. Elizabeth Podlaha-Murphy, working with Louisiana State University, was awarded a \$276K grant to create a device using nanowires that will screen RNA and DNA sequences as a part of NIH's \$1000 Genome Project.

Prof. Ronald Wiley received the Bill Doyle Award at the 2011 AIChE Loss Prevention Symposium for the best paper titled, "The Integration of Process Safety into a Chemical Reaction Engineering Course: Kinetic Modeling of the T2 Incident", coauthored with Michael Cutlip and H.Scott Fogler.

Department News and Awards

Graduate

George Aninwene II (a graduate student in Prof. Webster's laboratory) was selected as a winner of the Society for Biomaterials' Student Travel Achievement Recognition (STAR) Award, Honorable Mention.

Fulden Buyukozturk received the American Institute of Chemists (AIC) Outstanding Graduate Student Award.

Nina Bordeaux attended the highly selective IEEE Magnetics Society Summer School held in Chennai, India, in July 2012.

Selena DiMaio received the 2011 Northeast Bioengineering Conference Travel Award.

The article titled "Thermomagnetic determination of Fe_3O_4 magnetic nanoparticle diameters for biomedical applications" published in Journal of Magnetism and Magnetic Materials and written by ChE PhD graduate **Brian Plouffe**, Associate Prof. Shashi Murthy and Prof. Laura Lewis was one of the top 25 articles of 2011.

Noreen Rizvi won the Northeast International Society of Pharmaceutical Engineers (ISPE) Poster Competition for her poster: "Transcriptional Regulation of Alkaloid Biosynthesis in *Catharanthus roseus*."

Salem Zahmi received the Electrochemical Society Student Travel Award for his research presentation at the spring 2012 ECS meeting.

Undergraduate

Sean Burns ('13) was awarded the 2012 Steamboat Scholarship, a grant that provides students with the opportunity to participate in prestigious internships, and the Ralph Buonopane Award.

Emma Chory ('12) received the 2012 National Science Foundations Graduate Research Fellowship that recognizes outstanding students in NSF-supported STEM disciplines who are pursuing a graduate degree, AICChE Jeffrey Pierce Award, AICChE Outstanding Senior Award (Local Section), and the 100 Most Influential Students Award.

Taylor Dickman ('13) received the AICChE National Sophomore Academic Excellence Award, Honors Early Research Grant Award, Nabil Morris Award, Provost Undergraduate Research Award, and AICChE Donald F. and Mildred Topp Othmer National Scholarship Award.

Thomas Dusseault ('12) received the American Institute of Chemists Award, the Omega Chi Epsilon Award for Student of the Year, Sears B. Condit Award, the US NSF Graduate Fellowship Award

that recognizes outstanding students in NSF-supported STEM disciplines who are pursuing a graduate degree, and the 100 Most Influential Students Award.

Lauren Gianino ('12) received the Hodgkinson Award, Sears B. Condit Award, and the 100 Most Influential Students Award.

Emily Nelson ('12) received the Provost Undergraduate Research and Sears B. Condit Awards.

Peter Ries ('12) received the Provost Undergraduate Research Award, Sears B. Condit Award, and the 100 Most Influential Students Award.

Melissa J. Roth ('12), a Seasteading Institute scholar, received a grant from the ChE Department and COE Dean's Office for a presentation she gave in San Francisco in May 2012.

Daniel Shea ('12) won the Northeast International Society of Pharmaceutical Engineers (ISPE) Poster Competition for his poster titled, "Increased alkaloid production from cell cultures of the California poppy

through elicitation and in situ product extraction", and the Sears B. Condit Award.

ChE Awards were presented on April 18th, 2012. The winners are listed below

Provost Undergraduate Research Awards

Brian Beauvais
Megan Harless

Ralph A. Buonopane Awards

Brian T. Lejeune
Meghan E. McGill

Sears B. Condit Awards

Jason Rossi
John Henske

100 Most Influential Senior Awards

Anthony Fusco
Laura Rushford
Michelle Sopko

AICChE Outstanding Newcomer (2012) Awards

Ben Langhouser (Middler Class)
Griffin Rapsilber (Freshman Class)
Marcello Auriti (Junior Class)
Will Chauvin (Sophomore Class)

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Contact Us:

Department of Chemical Engineering
Snell Engineering Center, Room 313
Northeastern University
360 Huntington Avenue, Boston, MA 02115

Office: (617) 373-2989
Web: www.northeastern.edu/che/

Designed by: Dinara Andirova, ChE Ph.D. Student
Edited by: Patricia Rowe, ChE Department Staff Assistant