

KSU CHEMIST



Department of Chemistry
Kansas State University
213 CBC Building
Manhattan, KS 66506

VOL. 12, SUMMER 2017

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From the Department Head

Dear Friends:

It has been a busy year in the Chemistry Department with many changes, new arrivals and sad and unfortunate departures. Starting with the changes, the most significant one for me was taking over as head in January 2017. For those of you who do not know me, my name is Dan Higgins and I have served on the faculty here at K-State since 1996. Prior to moving here, I completed my B. A. in Chemistry at St. Olaf College and my Ph. D at the University of Wisconsin-Madison. I also did postdoctoral work at the University of Minnesota. My research falls in the realm of Analytical Chemistry and involves the use of super-resolution single molecule detection and spectroscopy as a means to explore nano-structured materials. I took over as head when Eric Maatta retired from our faculty after over 35 years of service to K-State, about 13 as the department head – more information on Eric is provided in a later section. His presence here will

be greatly missed. More recently, our awesome NMR Specialist Leila Maurmann decided to move on to a position outside of academics as well. Her help in managing our instrument facility over many years is greatly appreciated. Sadly, we lost our good friend, colleague and former head Ken Klabunde at the end of April 2017 – an obituary is included. Ken's death made for a very rough end to school year, but brought many old friends to town in honor of his passing. On a more positive note, we added two new staff and three new faculty members during 2016 and 2017, and our students and faculty had many remarkable achievements in the classroom and research lab! These achievements produced many awards and these are given towards the end of this newsletter. If you have the time, feel free to call, email, or stop by with news, comments or questions!

Daniel A. Higgins

Professor and Head Eric Maatta Retires from Chemistry

Eric Maatta retired in December 2016 after over 35 years of service to the Department of Chemistry. Eric earned his B. S. in Chemistry from Carnegie Mellon University in 1974 and his Ph. D. from Indiana University in 1980, the latter under the direction of Rupert Wentworth. He then worked as a postdoctoral associate with Tobin Marks at Northwestern University. He joined the faculty at K-State as an Assistant Professor in July of 1981 and was promoted to Professor in 1991. Eric served as department head from 2004 through his retirement.

Eric taught a variety of chemistry courses at K-State, including freshman chemistry, transition metal chemistry and inorganic chemistry, and supervised more than 20 undergraduate, graduate and postdoctoral researchers. In recognition of his outstanding teaching and mentoring, he was awarded K-State's Commerce Bank Distinguished Graduate Faculty Award, the Conoco Undergraduate Teaching Award and the Segebrecht Distinguished Faculty Achievement Award. He also was a two-time recipient of the William L. Stamey Award for Excellence in

Teaching. His other contributions include serving for many years on the K-State Faculty Senate.

Eric's research was devoted to synthetic inorganic and polyoxometalate chemistry and was funded by the National Science Foundation, the U.S. Department of Energy, and the Petroleum Research Fund among other sources. He co-authored nearly 50 scientific publications with his group, was awarded two patents, and gave more than 70 invited research presentations across the United States and internationally. He served as a consultant to several companies and was active in the American Chemical Society. He also served on many scientific review panels.



Photo Credit: C. H. Collins

In Memory of Professor Emeritus Kenneth J. Klabunde



Photo Credit: unknown

Dr. Ken Klabunde passed away on April 28, 2017. Ken was born on May 30, 1943 in Madison, WI. He earned a B. A. from Augustana College in 1965 and his Ph. D. in Organic Chemistry at the University of Iowa in 1969. After a postdoctoral appointment at Penn State, he joined the Chemistry faculty at the University of North Dakota in 1970. In 1979, he moved to K-State, where he took on the role of department head for nine years. He was named University Distinguished Professor in 1995. Ken was one of world's leading experts in the field of nanotechnology. He published over 500 papers, authored and edited four influential books, and was granted scores of patents. He trained 171 individuals, including 46 doctoral students. He delivered 200 invited lectures and received numerous awards including the ACS Midwest Award, a Breakthrough Award from Popular Mechanics, the Iman Research Award, and the Olin Petefish Award in the Basic Sciences. He was named an Alumni Fellow by the College of Liberal Arts and Sciences of the University of Iowa and a Fellow of the American Chemical Society.

Ken is survived by his wife, Linda; their children: David Klabunde, and John Klabunde, Sara Huter and husband Daryl; two grandsons: Erik and Tyler Huter; and siblings: Kitty Beth Collins, Kristine Klein, Karter Klabunde and Roger Klabunde. Ken's presence will be greatly missed!

Meet the New Members of our Department

Dr. Tendai Gadzikwa

Tendai joined our faculty as an Assistant Professor in August, 2016. She received her bachelor's degree in chemistry from Macalester College and her Ph. D from Northwestern University, working under the direction of Joseph Hupp. She held a prestigious Schlumberger Postdoctoral Fellowship at the University of Amsterdam, working with Joost Reek. After serving as a senior lecturer at the University of Zimbabwe, she most recently worked as a visiting researcher at the University of Alberta. Tendai's research focuses on the design of microporous metal-organic framework materials with applications in catalysis, environmental detection and point-of-care diagnostics. She teaches courses in Inorganic Chemistry.



Dr. Peter E. Sues

Peter will be joining our faculty as an Assistant Professor in August, 2017. He received both his bachelor's degree and his Ph. D. from the University of Toronto, the latter under the direction of Robert H. Morris. He did his postdoctoral work at the Massachusetts Institute of Technology, working with Richard Schrock. Peter's research program will emphasize synthetic inorganic and organometallic chemistry, supported by theoretical computations, to develop inexpensive and sustainable catalysts for a variety of chemical transformations such as in the selective formation of carbon-carbon bonds through olefin metathesis and in the catalytic activation of small molecules for applications in sustainable energy.



Dr. Laura Fox

Laura joined our faculty as an Assistant Teaching Professor in August, 2016. She received her B. S. in chemistry from Indiana University of Pennsylvania, her M. S. in chemistry from the University of Minnesota and her Ph. D. in Curriculum and Instruction from the University of Minnesota. Laura teaches courses in our freshman chemistry program and is doing an outstanding job at that... she was named Housing and Dining Professor of the year in spring 2017 after only two semesters of teaching at K-State!



Yvonne Bachura

Yvonne joined our department about one year ago as our new Accountant. She does an outstanding job keeping track of all the different accounts associated with our many research grants and all of the various accounts through which our department receives operating funds from the university. With the ongoing financial difficulties at the State and University levels, managing our operations continues to become even more challenging.



Bart Bath

Bart is our new storekeeper and does an excellent job operating our chemical storeroom, managing the inventory, helping students and faculty find the items they need, working with students to ensure the drawers they are assigned are fully stocked at the start of the semester and, yes, dealing with replacement items when things get broken.



News from the Glass Shop

As the temperatures outside start to climb, the scientific glassblowing shop is warming up too. As summer research ramps up the glass shop is called on more frequently to meet researcher's glassware needs. Sometimes it is a simple repair, like replacing a stopcock on a chromatography column, or fixing a crack in a round bottom flask. Other repairs are more interesting, like replacing an inlet port on a *mosquito feeder* used for malaria studies, or replacing a high vacuum valve on a Schlenk manifold. With the arrival of new faculty, there is also a lot of new fabrication. One of our new inorganic colleagues, Peter Sues, will be using specialty glassware designed for air sensitive reactions. Almost all of this glassware will utilize high vacuum Teflon stopcocks. Tendai Gadzikwa, another inorganic colleague, uses precision fittings called Solvseal joints that require no grease and expose only Teflon and glass to the system. Designing new glassware for new experiments is always rewarding and challenging, and the researcher gets exactly what they want. The picture shows the fabrication of a cold trap assembly for a vacuum manifold.



Photo Credit: Susan Higgins

James Robert Holys

Recent Graduates

Bachelor of Science

Marquix Alexander Shuichi Adamson
 Linah Mohammed A. Alkotami
 Momen Mohammed Al-Momen
 Joshua Michael Austin
 Lacey Marie Beck
 Richard Alexander Corbett III
 Aaron Richard Day
 Hannah Marie Devore
 Nathan Lee Haverkamp
 Kali Alysse Hinman
 Juliana Knopp
 Caleb James Lang
 Nicole Marie McKinnon
 Brenna Renee McMasters
 Alex Anderson Meier
 Sarah Keatley Price
 Kevin C. Robben
 Dalia Cecilia Sanchez
 Melanie Annette Sowards

Graduate Degrees

Madumali Kalubowilage, Ph. D.
 Major Prof: Stefan Bossmann
 Title: Liquid Biopsies of Solid Tumors: Non-Small-Cell Lung and Pancreatic Cancer.

Sadish Karunaweera, Ph. D.

Major Prof: Paul Smith
 Title: Theory and Simulation of Molecular Interactions in Biological Systems.

Hongfu Lou, Ph. D.

Major Prof.: Viktor Chikan
 Title: Understanding and Controlling Defects in Quantum Confined Semiconductor Systems.

Damith Randika E.W. Patabadige, Ph. D.

Major Prof: Christopher Culbertson
 Title: Developing Multilayer Microfluidic Platforms and Advancing Laser Induced Fluorescent Detection and Electrochemical Detection to Analyze Intracellular Protein Kinases, Reactive Nitrogen and Oxygen Species in Single Cells.

Dol Raj Sapkota, M. S.

Major Prof: Takashi Ito
 Title: Single Molecule Tracking Studies of Solvent-Swollen Microdomains in Cylinder-Forming Polystyrene-Poly(ethylene oxide) Diblock Copolymer Films

Soma Sekhar Sriadibhatla, M. S.

Major Prof: Santosh Aryal
 Title: Synthesis and Characterization of Alendronate Functionalized Poly(L-lactide) Polymers for Engineering Bone Tumor Targeting Nanoparticles.

Sahani Manjitha Weerasekara, Ph. D.

Major Prof: Duy Hua
 Title: Design, Synthesis, and Evaluation of Bioactive Molecules; Quantification of Tricyclic Pyrone from Pharmacokinetic Studies; Nanodelivery of siRNA; and Synthesis of Viral Protease Inhibitors.

Hao Xu, Ph. D.

Major Prof: Daniel Higgins
 Title: Fluorescence Microscopy Studies of Molecular Diffusion and Interaction within Self-Assembled Nanomaterials.

Yiqun Yang, Ph. D.

Major Prof: Jun Li
 Title: Integration of Photosynthetic Pigment-Protein Complexes in dye Sensitized Solar Cells, Towards Plasmonic-Enhanced Biophotovoltaics.

Asanka Sajini Yapa, Ph. D.

Major Prof.: Stefan Bossmann
 Title: Nanosponges for Advanced Drug Delivery.

Man Zhang, Ph. D.

Major Prof: Duy Hua
 Title: Design, Synthesis and Evolution of Bioactive Molecules; Chiral Polyvinylpyrrolidones Supported Cu/Au Nanoclusters Catalyzed Cyclizations of 5-Substituted-Nona-1,8-dien-5-ol.

Donors to the Department of Chemistry from June 1, 2016 – May 31, 2017

A Big THANK YOU to all for your generous support of our programs!

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The generous contributions listed above have helped us support talented undergraduate and graduate students, enhance our instructional and research equipment, host outstanding scientists for interactive visits and send our students to conferences to present their research findings. Should you be interested in contributing (or for corrections), please contact our Foundation development team at 1-800-432-1578 or 785-532-7980. We would be honored to have your support.

Recognition and Awards

Faculty	Graduate Students
<p>Christer Aakeröy: Olin Petefish Award in Basic Sciences; British Crystallographic Association Prize Lecture</p> <p>Stefan Bossmann: STEM Research Exemplar, Washington University School of Medicine</p> <p>Laura Fox: Housing and Dining Professor of the Year</p> <p>Ping Li: Promoted to Associate Professor</p> <p>Emily McLaurin: NSF CAREER Award</p> <p>Yasmin Patell: KSU Athletics Professor of the Week</p> <p>Paul Smith: W. M. Keck Foundation Award</p>	<p>Bo Hao: PLU Award</p> <p>Madumali Kalubowilage and Ravithree Senanayake: Graduate Research Award</p> <p>Emery Brown: Mitsugi Ohno Award</p> <p>Asanka Yapa: Dane Hansen Award</p> <p>Tuyen Nguyen: Winner, 3 Minute Thesis Competition; Science Communication Fellowship, Sunset Zoo</p> <p>Ravithree Senanayake: Fateley-Hammaker Collaboration Award</p> <p>Mahboobe Jassas: Chemistry Alumni Award</p> <p>Govinda Ghimire and Zi Li: Meloan Award in Analytical Chemistry</p> <p>Lauren Chlebanowski, Obdulia Covarrubias, and Zeinab Harandizadeh: PLU Classroom Performance Award</p> <p>Bhupinder Sandhu: University Distinguished Professors Graduate Student Award</p> <p>Ruben Shrestha: K-INBRE Excellent Poster Award</p>
Alumni	
<p>Geraldine Richmond: K-State Honorary Doctorate</p>	
Undergraduate Students	Postdoctoral Associates
<p>Lacey Beck and Jonathan Dallman: PLU Undergraduate Research Award</p> <p>Annie McLean: Royal Society Merck Index Award</p> <p>Nathan Haverkamp and Raquel Ortega: Senior PLU Classroom Performance Award</p> <p>Kyle Apley: Junior PLU Classroom Performance Award</p> <p>Makena Utech and David Nelson: Sophomore PLU Classroom Performance Award</p> <p>Brady McFadden and Mikaela Moore: Freshman PLU Classroom Performance Award</p>	<p>Gaochao Huang: NIH K-INBRE Postdoctoral Fellowship</p>
	<p>Cover Photo: Members of Alpha Chi Sigma perform a chemistry demonstration show for young people and their families at the K-State Open House. Photo Credit: Stephanie Lee.</p>