



# **Purdue University School of Chemical Engineering**

**2012 – 2013 Year in Pictures**



# ChE Strategic Plan 2010 – 2014

- **Vision:** Be widely recognized among the premier ranks of chemical engineering programs in the world.
- **Mission:** Provide students with a rigorous and relevant education, conduct field-defining research, and enhance the School's global impact.
- **Values:** Leadership, excellence and innovation, relevance and impact, commitment and responsibility, teamwork and partnership, diversity and respect, safety and sustainability.



# ChE Strategic Plan 2010 – 2014

- **Research:** To pursue breakthrough research that extends the boundaries of chemical engineering into areas which promote sustainability and which will have the greatest positive impact on our global society.
- **Education:**
  - **Graduate Programs:** Recruit and retain high caliber graduate students from top-tier chemical engineering programs, provide challenging and relevant research programs, and a quality graduate level education.
  - **Undergraduate Programs:** Recruit and retain the most capable, motivated and diverse class of undergraduates, and help them to obtain a solid and relevant education throughout their Purdue experience.
- **Global Impact:** Educate undergraduate and graduate students who will be successful in a global environment. Cultivate and expand research relationships with prominent international research organizations.

## ChE Strategic Plan 2010 – 2014 continued

- **Development:** Secure and improve the School's financial foundation as a means to continually improve its programs and physical facilities, while balancing short and long term goals.
- **Engagement:** Encourage faculty, students and staff to develop a sense of personal responsibility and accountability for service at both the local and national levels. Promote entrepreneurial activity, leading to intellectual property, including invention disclosures and patents. Become a leader in sustainability on the Purdue campus.
- **Professional Development and Recognition:** Encourage all faculty, staff, and students to participate in activities that will enhance their career, develop their skills, and help them become more creative and productive. Actively promote recognition by internal and external award nominations.
- **Culture and Environment:** Create an environment where faculty, staff, and students are treated with respect and where superior teamwork is achieved. Enhance and expand safety activities and safety education.

# Mitch Daniels Joins as Purdue's 12<sup>th</sup> President!



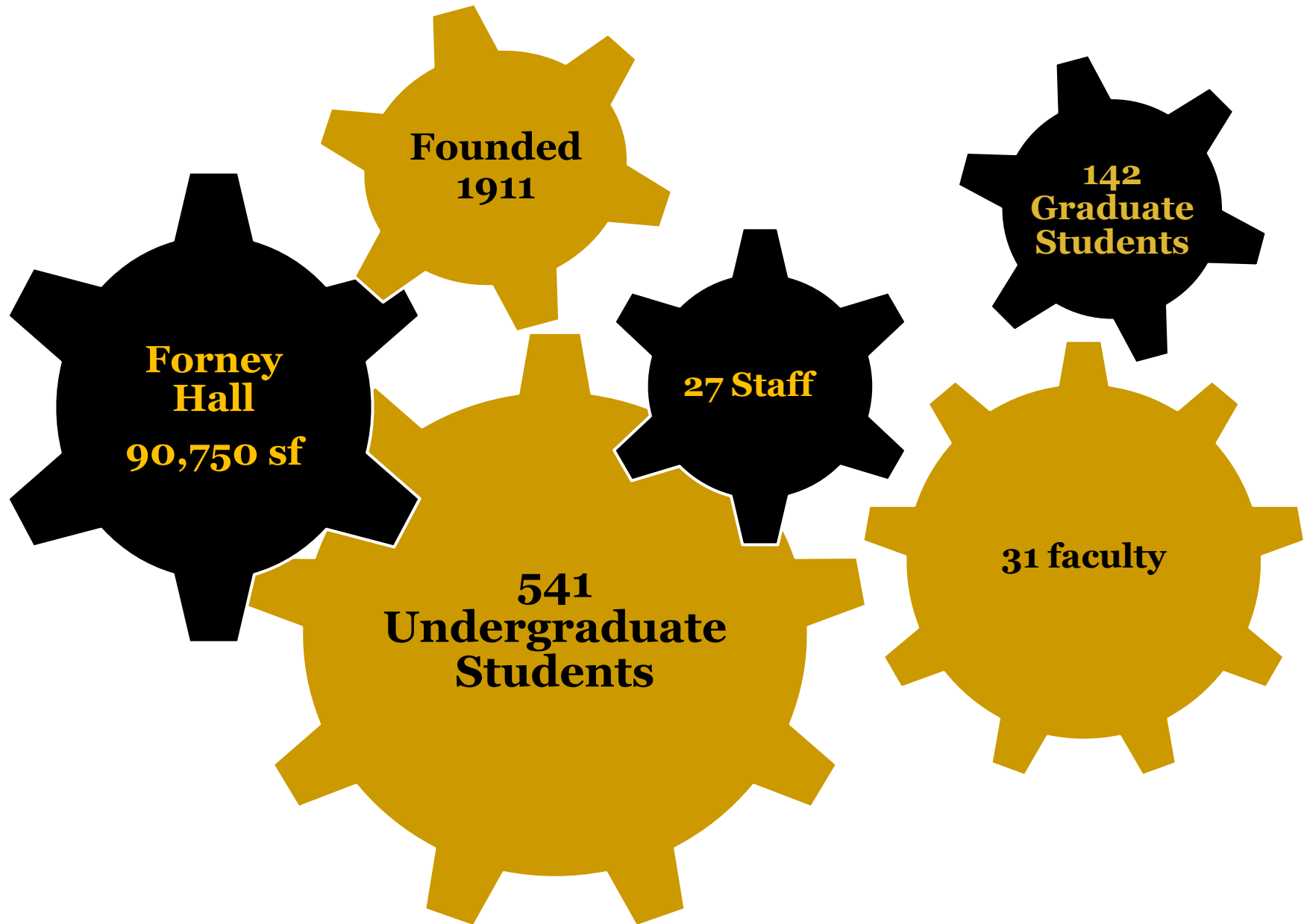
BA, Princeton, 1971

JD, Georgetown,  
1979

Governor of the  
State of Indiana,  
2004-2012

2013  
Purdue  
University  
President

# Purdue ChE School Parameters



**Forney  
Hall**  
**90,750 sf**

**Founded**  
**1911**

**142**  
**Graduate**  
**Students**

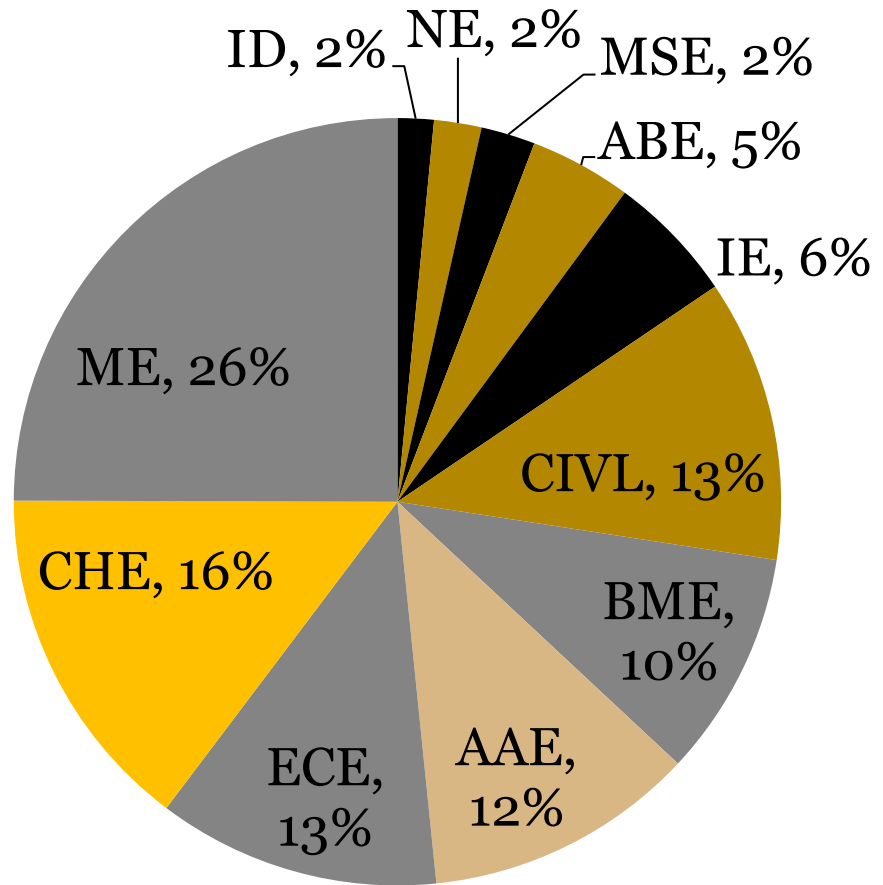
**27 Staff**

**541**  
**Undergraduate**  
**Students**

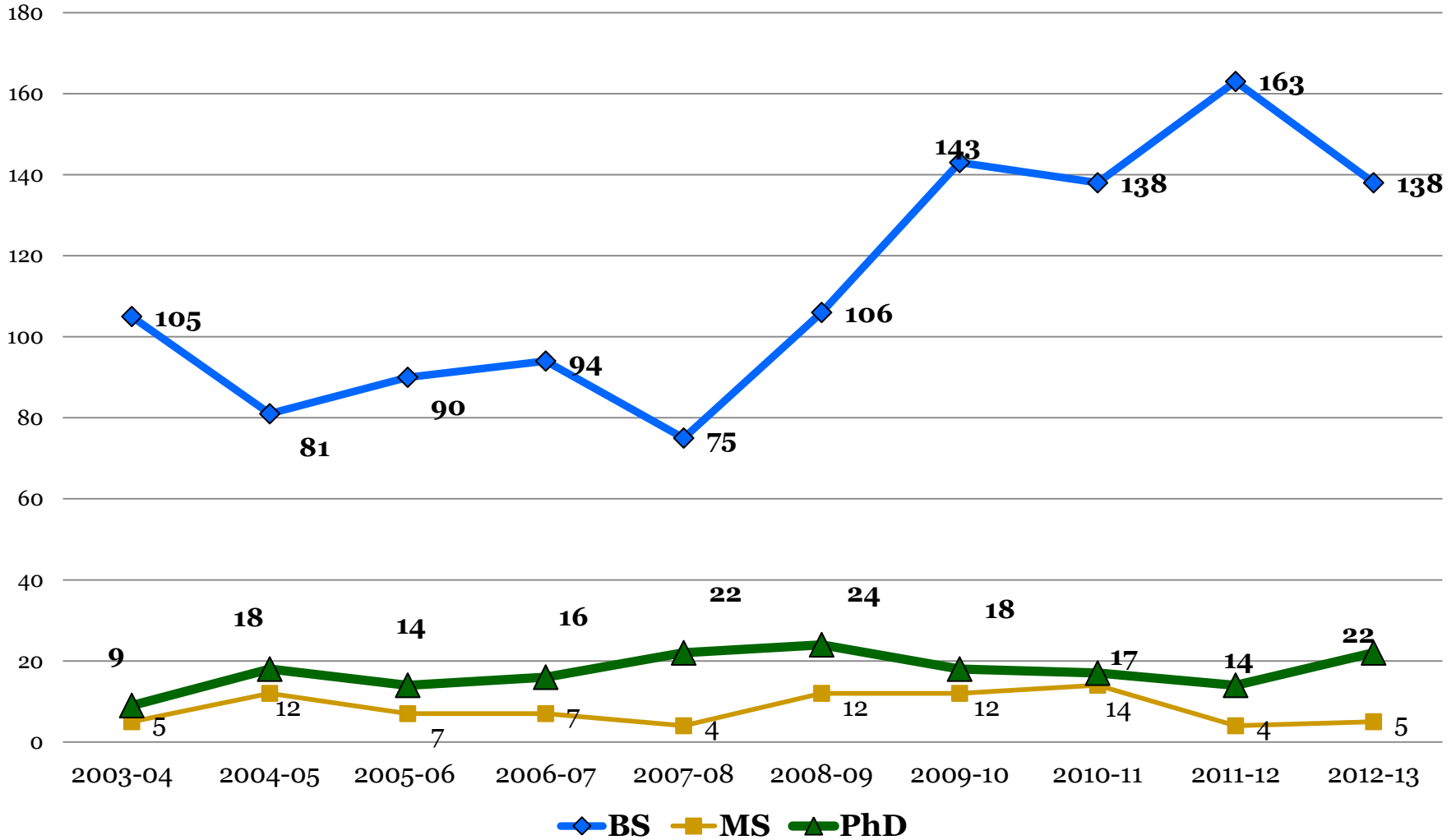
**31 faculty**

# Presidential and Trustees Scholarship Information

- Although ChE students accounted only for 9% of the fall 2012 enrollment in the College of Engineering, they received 16% of the total Presidential and Trustees Scholarships in the College.
- 30% of all ChE undergraduate students receive Presidential and Trustees Scholarships (fall 2013).
- 64% of our undergraduate students have a GPA of 3.2 or



# Purdue ChE Degrees Conferred





# Chemical Engineering Faculty



**Rakesh Agrawal**  
ScD, MIT, 1980



**Osman A. Basaran**  
PhD, Minnesota, 1984



**Stephen P. Beaudoin**  
PhD, NC State, 1995



**Bryan W. Boudouris**  
PhD, Minnesota, 2009



**James M. Caruthers**  
ScD, MIT, 1977



**David S. Corti**  
PhD, Princeton, 1997



**Elias I. Franses**  
PhD, Minnesota, 1979



**Raj P. Gounder**  
PhD, UC Berkeley, 2011



**Robert E. Hannemann**  
MD, Indiana, 1959

# Chemical Engineering Faculty



**Michael T. Harris**  
PhD, Tennessee-  
Knoxville, 1992



**R. Neal Houze**  
PhD, Houston, 1968



**Jeffrey P. Greeley**  
PhD, Wisconsin  
Madison, 2004



**James D. Litster**  
PhD, Queensland, 1985



**Julie C. Liu**  
PhD, Caltech, 2006



**John A. Morgan**  
PhD, Rice, 1999



**Zoltan K. Nagy**  
PhD, Babes-Bolyai, 2001



**Joseph F. Pekny**  
PhD, Carnegie Mellon, 1989

# Chemical Engineering Faculty



**R. Byron Pipes**  
PhD, Texas-  
Arlington, 1972



**Doraiswami Ramkrishna**  
PhD, Minnesota, 1965



**Gintaras V. Reklaitis**  
PhD, Stanford, 1969



**Fabio H. Ribeiro**  
PhD, Stanford, 1989



**Kendall T. Thomson**  
PhD, Minnesota, 1999



**Arvind Varma**  
PhD, Minnesota, 1972



**Nien-Hwa Linda Wang**  
PhD, Minnesota, 1978



**Phillip C. Wankat**  
PhD, Princeton, 1970

# Chemical Engineering Faculty



**You-Yeon Won**  
*PhD, Minnesota, 2000*



**Yue Wu**  
**PhD, Harvard, 2006**



**Chongli Yuan**  
**PhD, Cornell, 2007**



**Ernesto Marinero**  
**Professor of**  
**Engineering Practice**  
**PhD Heriot-Watt, 1977**

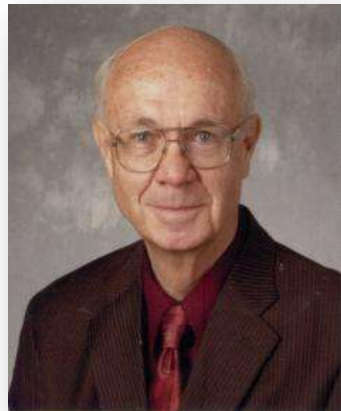


**Enrico Martinez**  
**Visiting Professor**  
**PhD Notre Dame, 1972**

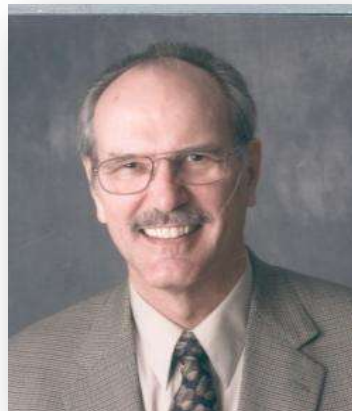


**Jeffrey J. Siirola**  
**Professor of**  
**Engineering Practice**  
**PhD Wisconsin Madison,**  
**1970**

# Chemical Engineering Emeritus Faculty



**Ronald P. Andres**  
PhD, Princeton, 1962



**W. Nicholas Delgass**  
PhD, Stanford, 1969



**Robert A. Greenkorn**  
PhD, Wisconsin, 1957



**Nancy W. Y. Ho**  
PhD, Purdue, 1968



**George T. Tsao**  
PhD, Michigan, 1960

# Recent Faculty Additions



**Jeff Greeley**  
Associate Professor  
Joined Spring 2013

B. S., University of Texas-Austin, 1997  
Ph. D., University of Wisconsin-Madison,  
2004  
Postdoctoral Fellow, Technical University  
of Denmark, 2004 - 2006

**Research Interests:** New engineered  
materials for metal and oxide  
catalysts, fuel cells, electrolyzers, and  
batteries



**Raj Gounder**  
Assistant Professor  
Joined Fall 2013

B. S., University of Wisconsin, 2006  
Ph. D., University of California, Berkeley, 2011  
Postdoctoral Fellow, California Institute of  
Technology, 2011 - 2013

**Research Interests:** synthesis of inorganic  
catalysts with tailored properties, the  
characterization of catalyst active site and  
support structures, and the evaluation of  
catalytic function using fundamental kinetic  
and mechanistic descriptors.

# Recent Faculty Additions



**Carl Laird**  
**Associate Professor**  
To join Spring 2014

B.Sc., University of Alberta, 2000  
Ph.D., Carnegie Mellon University,  
2006

**Research Interests:** Large-scale nonlinear optimization, parameter estimation, and parallel computing.



**Vilas Pol**  
**Associate Professor**  
To join Spring 2014

B.Sc., Pune University, India, 1996  
Ph.D., University of Bar-Ilan, Israel, 2005  
Post-Doctoral Research Associate, 2008-10;  
Research Scientist, 2010-present,  
Argonne National Laboratory

**Research Interests:** Electrochemical engineering, nanoparticle technology, materials science, energy storage devices and environmental technology



# Class of 2013

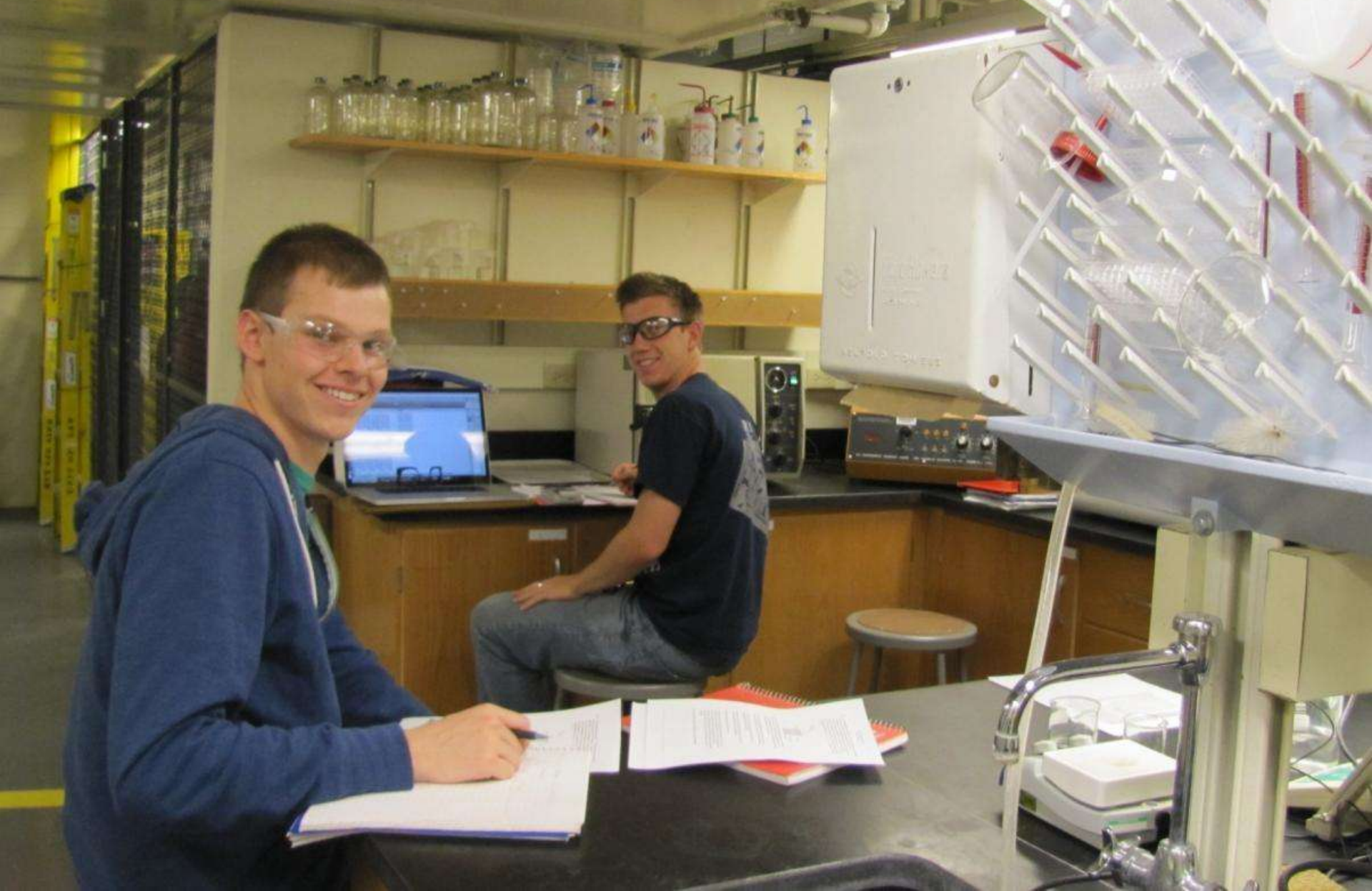




# France A. Cordova Recreational Sports Center



# Unit Operations Lab Before Renovation



# Unit Operations Lab Before Renovation



# 2012 College of Engineering Staff Awards: Cristina Farmus, Staff Leadership Award

CLUB CROSS

College of Engineering  
STAFF AWARDS OF  
EXCELLENCE



**Klod Kokini, Karen Heide, Arvind Varma, Cristina Farmus, Enrico Martinez,  
Leah Jamieson, Jennifer Mamph, Miren Martinez, Jimmy Mamph**

November 2012

# December 2012 Graduation



# Pinnacle Award, Naples

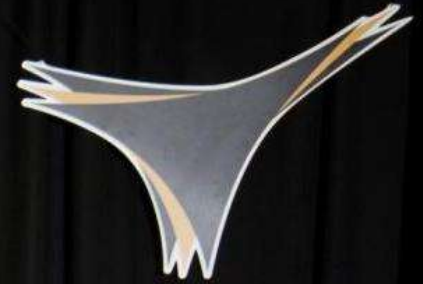
**Arvind Varma, Jerry (BS 1954) and Sally Skidmore, President Mitch Daniels**

PURDUE UNIV



February 2013

# College of Engineering - 2013 Distinguished Engineering Alumni Awards



February 2013



## College of Engineering 2013 Distinguished Engineering Alumni Awards

Dean Leah Jamieson and  
**Henry T. Sampson** (BS '1956)

*"It's very special because I consider Purdue the starting point of my engineering profession. It was there I took an elective course in nuclear engineering that inspired me to pursue my graduate degrees in nuclear engineering"*

-Henry T. Sampson, first African American to earn a PhD in nuclear engineering in the U.S.

February 2013





## College of Engineering 2013 Distinguished Engineering Alumni Awards

Dean Leah Jamieson and  
**Robert Weist (BS 1962)**

*“I am honored to be a recipient of the Distinguished Engineering Alumnus Award. It is unexpected. I take pride in this award. I continue to be pleasantly surprised at the many different parts of the University that exist and that contribute in positive ways to the whole Purdue experience”*

-Robert D. Weist

February 2013

# Study Abroad

Purdue ChE  
Undergraduate Students  
in front of the  
Temple of Heaven,  
China



February 2013

# Industrial Advisory Council, Spring 2013 Meeting

Houston, Texas



March 2013

# Industrial Advisory Council, Spring 2013 Meeting

Houston, Texas



Mr. Cristina Farnus

Mr. Richard N...

March 2013

# Industrial Advisory Council, Spring 2013 Meeting

Houston, Texas



March 2013

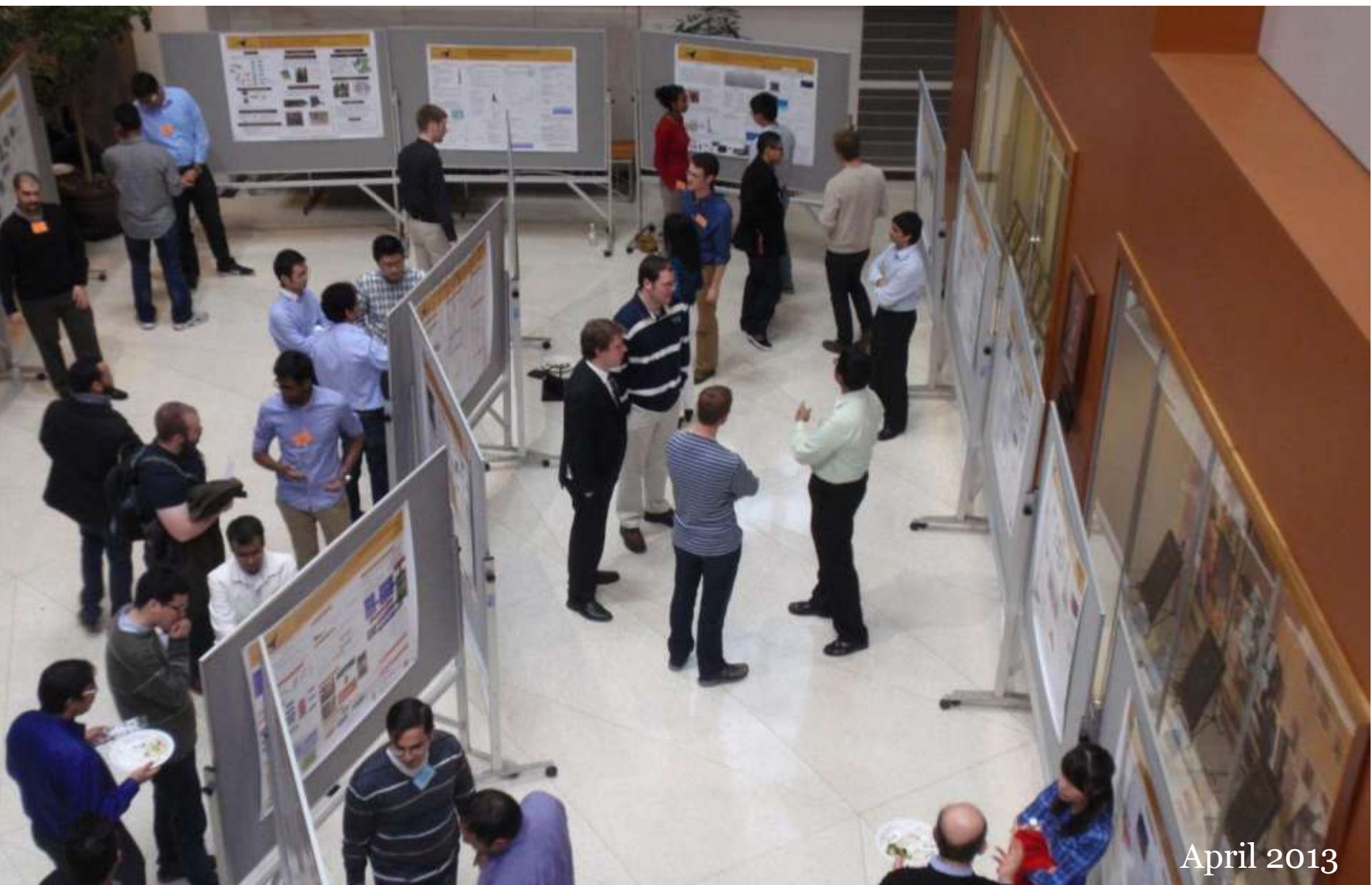
# AICHE Chem-E Car

Regional Competition



March 2013

# Graduate Colloquium



April 2013

# Anheuser Busch Plan Tour, St. Louis



April 2013



# Women in ChE Seminar

Lindsay Williams (BS 2010), Professor Linda Wang,  
Susan Hardman (BS 1983), Claire Chandler (BS 1982)



April 2013

# Senior Banquet

**Arvind Varma**

R. Games Slayter Distinguished Professor

Jay and Cynthia Ihlenfeld Head of Chemical Engineering



April 2013

# Senior Banquet

Arvind Varma and students



April 2013



## **Michael F. Doherty**

**Professor of Chemical Engineering  
and Department Chair  
University of California  
Santa Barbara**

# **2013 KELLY LECTURES**

» **RAPID PROCESS DESIGN: SORTING THE WHEAT  
FROM THE CHAFF**

Tuesday, April 16, 9:00–10:15 a.m. • Room G140, Forney Hall

» **CRYSTALS ARE LIKE PEOPLE: GROWTH AND DEFECTS ARE  
WHAT MAKE THEM INTERESTING**

Wednesday, April 17, 11:30 a.m.–12:30 p.m. • Room 3059, Forney Hall



## **Spring 2013 End of Semester Appreciation Reception**

**Karen Heide**  
(Secretary) recognized for  
25 years of Service in  
Chemical Engineering,  
pictured with  
Arvind Varma



# **Spring 2013 End of Semester Appreciation Reception**

**Teresa Cadwallader**  
(Administrative Assistant)  
received the  
2013  
ChE Staff Excellence Award,  
pictured with  
James Litster

# May 2013 Graduation



May 2013

# May 2013 Graduation



May 2013



# May 2013 Graduation



May 2013

# May 2013 Graduation Reception



May 2013

# Recent Faculty Honors – International



**Arvind Varma, Head, Chemical Engineering**

**Leah H. Jamieson, Dean, College of  
Engineering**

**Sangtae Kim, Distinguished Professor**

**Mitchell E. Daniels, President, Purdue  
University**

**Sangtae Kim**  
Distinguished Professor  
received the  
**2013 Ho-Am Prize  
Engineering  
Korea**



June 2013

# 2013 ChE Staff Retreat

France A. Córdova Recreational Sports Center



June 2013

# 2013 New ChE Graduate Students Picnic



August 2013

# 2013 OChE Awards



Professor Michael Harris, Jennifer Sinclair Curtis (BS '83), Arvind Varma, and Ron Unnerstall (BS '83), and Professor Osman Basaran

# 2013 OChE Awards

Professor Michael Harris, Jennifer Sinclair Curtis (BS '83), Arvind Varma,



September 2013

# 2013 OChE Awards

Professor Osman Basaran, Ron Unnerstall (BS '83), Arvind Varma

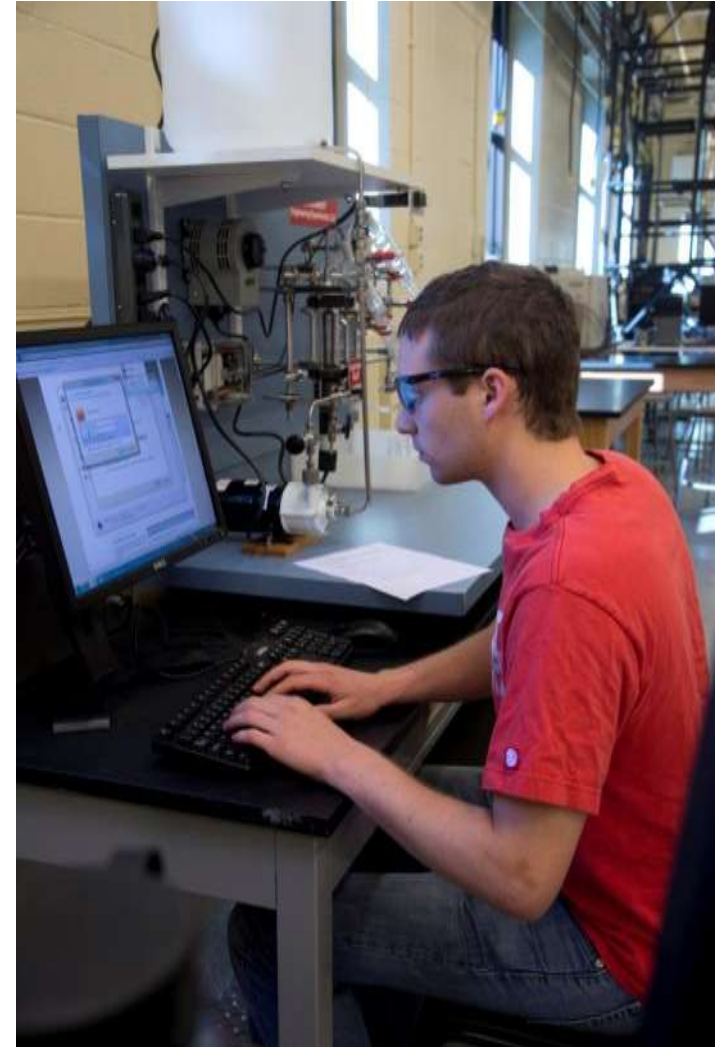


September 2013



# Unit Operations Laboratory Upgrade

- Upgrade the Unit Operations Laboratory (Sr. Lab) in Forney Hall – completed summer 2013. This overhaul was needed so that our students can be educated using laboratory equipment and experiments designed for today's industrial reality.
- **\$550K** was raised to complete the needed upgrade from alumni, corporate support, faculty, and Purdue Repair and Rehabilitation funds.
- **\$1 million** endowment created by **Alan Fox** (BSCHE '55) for lab maintenance and upgrades in the future; naming Sep 13, 2013.



# Unit Operations Lab Inauguration

Alan H. Fox (BS '55) and Arvind Varma



September 2013

# Unit Operations Lab Inauguration

Industrial Advisory Council Members



September 2013

# Industrial Advisory Council, Fall 2013 Meeting



September 2013

# 2013-14 Graduate Student Organization Officers



**President**  
Frank DeVilbiss



**Vice President/Treasurer**  
Caitlin Schram

# 2013-14 Graduate Student Organization Officers



**First-Year Representative**  
Mark Koeper

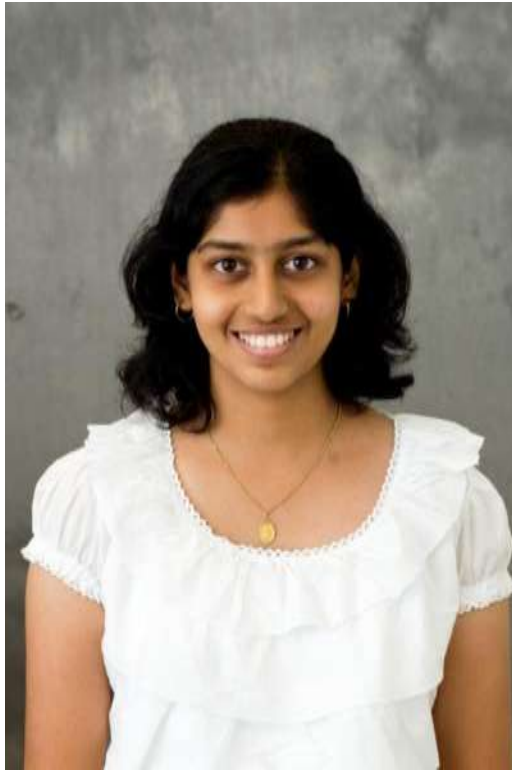


**Student Advocacy Officer**  
Bethlehem Negash



**Inter-GSO Events  
Committee Representative**  
Holly Chan

# 2013-14 Graduate Student Organization Officers



**Purdue Graduate Student  
Government Representative**  
Shankali Pradhan



**Social Events Committee  
Co-Chairperson**  
Pritish Kamat



**Sports Events Committee  
Co-Chairperson**  
Jamie Harris

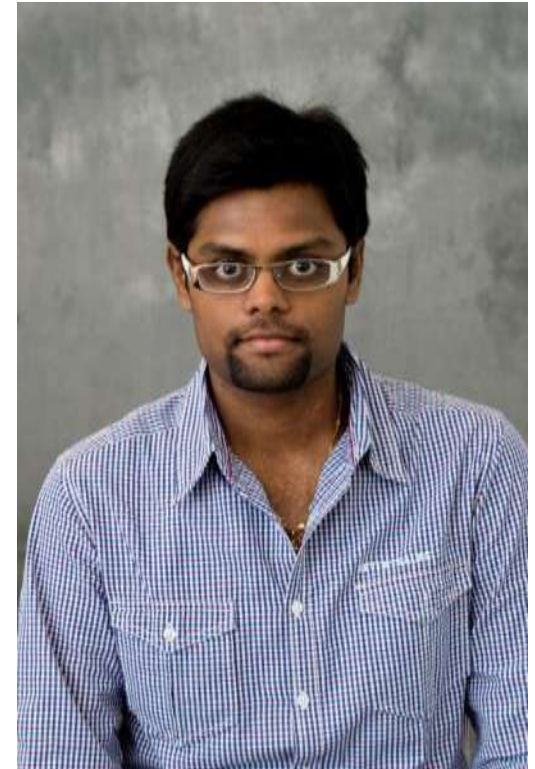
# 2013-14 Graduate Student Organization Officers



**Outreach Committee  
Chairperson**  
Nicole Devlin



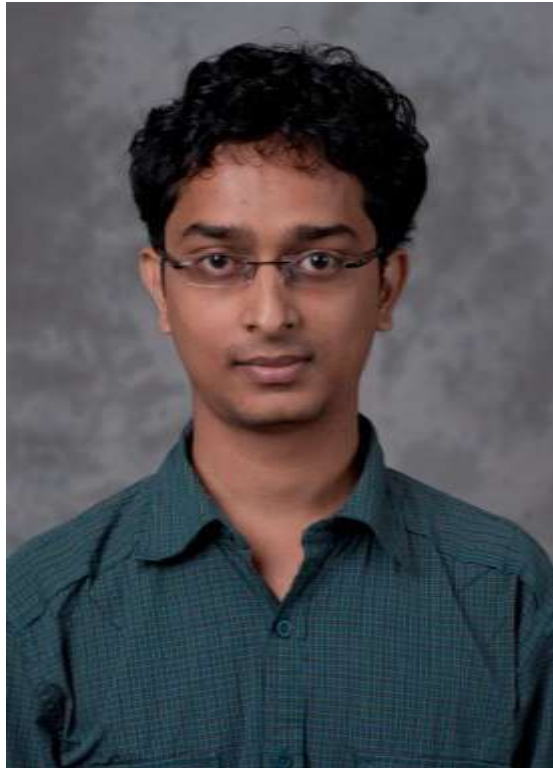
**Co-Curricular Committee  
Chairperson**  
Agnes Mendonca



**Sustainability Committee  
Chairperson**  
Rohit Jaini



# 2013-14 Graduate Student Organization Officers



**Safety Committee Chairperson**  
Kaiwalya Sabnis

## 2013 GSO Event List

Graduate Research  
Symposium  
Volleyball Tournament  
Indoor Soccer  
Tournament  
Halloween Extravaganza  
Truth and Beauty Seminar  
Block Party  
Salsa Dancing  
Quiz Bowl

# 2013 GSO Symposium



October 2013

# 2013 GSO Symposium Awards

## Oral Presentations

First Place: **Anuj Verma**

“Development of a new method to detect Cu ion clustering in Cu-SSZ13 for DeNO<sub>x</sub> applications”

Second Place: **Vinod Kumar Venkatakrishnan**

“Lab-scale process development for high-pressure fast-hydrolysis and catalytic hydrodeoxygenation for production of liquid fuel from biomass”

Third Place: **Aniruddha V. Kelkar**

“On a collision course... Prediction and Control of Particulate Aggregation and Deposition in Dispersion Flows”

Honorary Mention: **Dhairya Mehta**

“Millisecond timescale hydrolysis of cellulose and Vapor-phase hydrodeoxygenation kinetics of furfural”



**Aniruddha Kelkar and  
Arvind Varma**

# 2013 GSO Symposium Awards

## Poster Presentations

First Place: **Mary Jane Brennan**  
“Adhesive elastomeric proteins as soft tissue surgical glues”

Second Place: **Agnes Mendonca**  
“5-hydroxymethylation of cytosine has a sequence dependent effect on nucleosomal stability”

Third Place (tie): **Rohit Jaini & Longyun Guo**  
“Improving biofuel production by kinetic modeling of lignin metabolism”

Third Place (tie): **Gregory Honda**  
“Hydrodynamics of Trickle-Bed reactors with Particle Size Distribution”



**Greg Honda and  
Arvind Varma**

# Mellichamp Lecture

Duncan Mellichamp, Suzanne Mellichamp, Bryan Pfleger



October 2013

# 2013 ChE Scholarship Recipients

- Mark Apicella
- Adam Barth
- Kurtis Bergman
- Brandon Biega
- Kevin Bock
- Adam Broski
- Jefrey Bush
- Joshua Clark
- Candace Corso
- Jacob Eisses
- Isaura Frost
- Andrew Furthmiller
- Philip Gase
- Markus Graf
- Jacob Haines
- Karina Halim
- Nathan Handley
- Matthew Jahns
- Thomas Kilyk
- Andrew Kuhn
- Eric Lehmann
- Timothy Lehnert
- Paul Littlejohn
- Pedro Lodise
- Haefa Mansour
- Daniel Midkiff
- Michael Monte
- Justin Nauman
- Alicia Newcomer
- Andrew Nguyen
- Viet Nguyen
- Uhunnoma Ogbeifun
- Jonathan Pfluger
- Frank Pirok
- Richard Roberson
- Heather Robinson
- Brent Rogers
- Ankur Sarkar
- Adam Slagle
- Ashley Stroup
- Krista Stump
- Emily Thomas
- Alejandro Villanueva
- Kory Wait
- Yunjie Wang
- Nathan Wright



# 2013 Scholarship Reception



October 2013

# 2013 ChE Scholarship Reception

Arvind Varma, Kory Wait and Andrew Kuhn



October 2013



# Graduate Student Organization Halloween Extravaganza



October 2013

# Congratulations to ChE Alumni



**Kristi Anseth (BS '92)**

Elected Member of the National Academy of Sciences  
James E. Bailey Award, AIChE, 2013



**Chris Bowman (BS ChE '88, PhD '91)**

Named Distinguished Professor  
University of Colorado

# Congratulations to ChE Alumni



**Bruce E. Dale (PhD '79)**  
Named Distinguished Professor  
University of Michigan



**Anthony Lowman (PhD '97)**  
Named Dean of Engineering  
Rowan University

# Congratulations to ChE Alumni



**Steven R. Lustig (MS '85, PhD '89)**  
Industrial Research & Development Award  
AIChE, 2013



**E. Terry Papoutsakis (MS '77, PhD '90)**  
D.I.C. Wang Award for  
Excellence in Biomedical Engineering  
AIChE, 2013

# Congratulations to ChE Faculty



## **Rakesh Agrawal**

IIT-Kanpur Distinguished Alumnus Award, 2013  
Elected Member of the American Academy of  
Arts and Sciences, 2013



## **Nicholas Delgass**

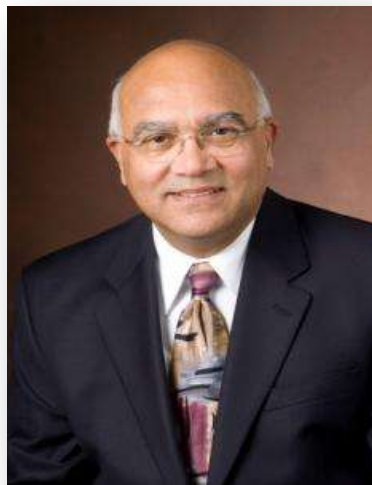
Elected Fellow of AIChE  
Received the 2013 Herman Pines Award in Catalysis

# Congratulations to ChE Faculty



## **Fabio Ribeiro**

Named R. Norris and Eleanor Shreve  
Professor of Chemical Engineering



## **Arvind Varma**

Warren K. Lewis Award  
AIChE, 2013

# Congratulations to ChE Graduate Students



**Kaoutar Abbou Oucherif**

Graduate Student Symposium in Manufacturing  
Science & Engineering Award, AAPS, 2013



**David Acevedo**

National Science Foundation  
Graduate Research Fellowship, 2013

# Congratulations to ChE Graduate Students



**Mary Jane Brennan**

Travel Award, Women's Initiatives Committee  
AIChE, 2013



**Nathan B. Davis**

2013 Magoon Award, College of Engineering, Purdue



# Congratulations to ChE Graduate Students



## Danni Gao

Second Place, American Chemical Society Great Lakes Chapter Poster Competition, 2013  
Travel Award, Women's Initiatives Committee, AIChE, 2013  
Young Researcher Award, NASCRE-3 Conference, 2013



## Emre Gencer

Committee Education of Teaching Assistants Award, 2013  
Purdue Global Policy Research Institute Fellowship, 2013

# Congratulations to ChE Graduate Students



**Anshu Gupta**

First Place, Indiana Soybean Alliance Competition, 2013



**Charles Hages**

Travel Award, Energy Materials Forum, MRS, 2013

# Congratulations to ChE Graduate Students



**Laura J. Hirschfield (PhD 2013)**

2013 Magoon Award, College of Engineering, Purdue



**Gregory Honda**

Best Presentation Award, Annual Meeting, AIChE, 2012  
Young Researcher Award, NASCRE-3 Conference, 2013  
Travel Award, Catalysis and Reaction Engineering  
(CRE) Division, AIChE, 2013

# Congratulations to ChE Graduate Students



**Elcin Icten**

IN-MaC Graduate Fellowship, Indiana Next Generation  
Manufacturing Competitiveness Center, 2013-15



**Aniruddha Kelkar**

Outstanding Service and Scholarship Award, Purdue 2013

# Congratulations to ChE Students



**Dharik Mallapragada**

Best Presentation Award, AIChE Annual Meeting, 2012



**Haefa Mansour (junior)**

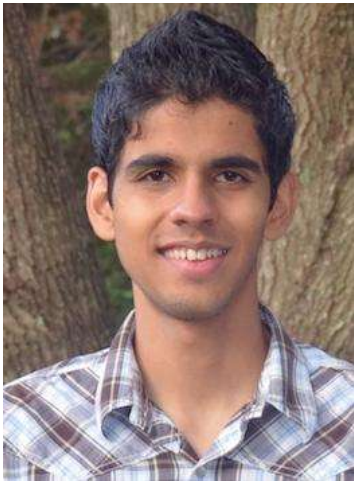
First Place, SURF Poster Competition, Purdue, 2013

# Congratulations to ChE Students



**Daniel Pohlman**

2013 Magoon Award, College of Engineering, Purdue 2013



**Ankur Sarkar (Junior)**

NIST SURF Fellowship, University of Colorado

# Congratulations to ChE Graduate Students



**Erik Sheets**

Excellence for Undergraduate Teaching Assistant, Purdue 2013



**Meenesh Singh (PhD 2013)**

Outstanding Research Award, College of Engineering  
Purdue, 2013

Process Development Division Student Paper Award,  
AIChE, 2013

# Congratulations to ChE Graduate Students



## Renay Su

Third Place, American Chemical Society Great Lakes Chapter Poster Competition, 2013  
Bilsland Dissertation Fellowship, College of Engineering, Purdue, 2013



## Sara Yohe

Kokes Award, 23<sup>rd</sup> North American Catalysis Society, 2013



# 2013 ChE Undergraduate Student Awards

## Brent Bishop

- George T. Tsao Award

## Adam Broski

- Stephen Craig Award

## Candace Corso

- Lindsay Anne Williams Award

## Brooke Elliott

- George T. Tsao Award

## Philip Gase

- Undergraduate Research Award

## Lee-Wei Kao

- George T. Tsao Award

## Christina Karl

- Omega Chi Epsilon Award

## Eric Lehmann

- George T. Tsao Award

## Haefa Mansour

- First Place, SURF Poster Competition, Purdue, 2013

## Rafid Mustafa

- John Clarence Lottes Memorial Award

## Jonathan Pfluger

- Undergraduate Research Award

## Ankur Sarkar

- George T. Tsao Award
- NIST SURF Fellowship, University of Colorado, 2013

## Amanda Taylor


- AIChE Award

# **Congratulations to ChE Undergraduate Students!**

## **Senior Design Project Award Teams**

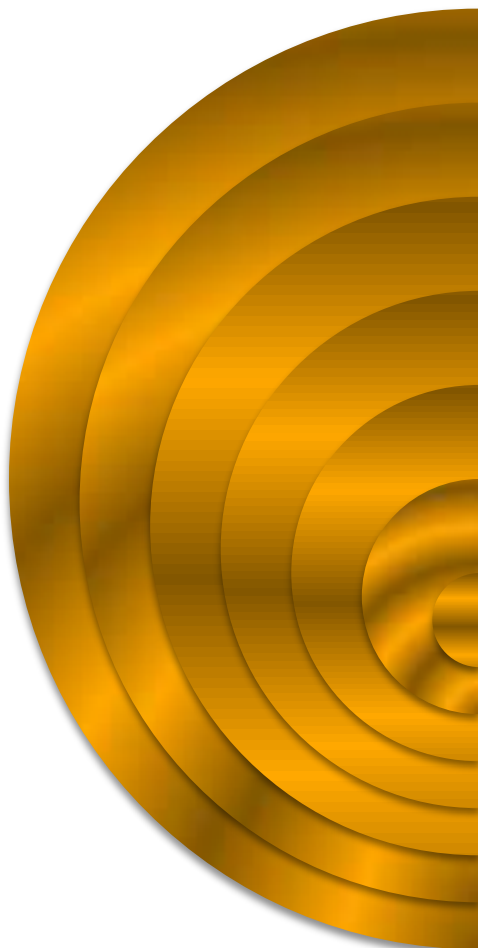
- Perry Helmer
- Aidan Light
- Benjamin Orkiszewski
- Karis Viars Waibel
  
- Joshua Andrejko
- Jacob Haines
- Evan Hanley
- Samuel Stuckey
- Anna Sullivan
  
- Markus Graf
- Stephanie Kennedy
- Paul Sabol
- Rebekah Steele

# Purdue ChE Research by Fundamental Topic Area



<b>Biochemical and Biomolecular Engineering</b>
<b>Catalysis and Reaction Engineering</b>
<b>Fluid Mechanics and Interfacial Phenomena</b>
<b>Mass Transfer and Separations</b>
<b>Nanoscale Science and Engineering</b>
<b>Polymers and Materials</b>
<b>Product and Process Systems Engineering</b>
<b>Thermodynamics, Molecular and Nanoscale Modeling</b>

# Purdue ChE Research by Application Area



<b>Biotechnology</b>
<b>Electronics</b>
<b>Energy</b>
<b>Manufacturing</b>
<b>Pharmaceuticals</b>
<b>Polymers and Advanced Materials</b>
<b>Security</b>

# Research Focus

Graduate Students Edward Tomlinson, Holly Chan and Lizbeth Rostro  
in Professor Boudouris' Research Lab



# Research Focus

Ryan Mulvenna (Graduate Student) in Professor Boudouris' Research Laboratory



**Purdue  
ChE  
Newsletter**

**Winter 2012-13**



**WINTER 2012**  
**CHEMICAL ENGINEERING**

**NEWSLETTER**

**OUR FUTURE IS IN GOOD HANDS**



# Purdue ChE International Partnerships





# Purdue ChE Industrial Affiliates



abbvie



EASTMAN

ExxonMobil

Honeywell



## Recent Development Success

- Jay (BSChE '74) and Cynthia Ihlenfeld Headship
- Strategic Initiatives Endowment Fund
- 2 Named Professorships in Chemical Engineering
- Graduate Education Match Funds



**Jay Ihlenfeld**

# Thank you!

