

Mascaro Center for Sustainable Innovation

2004-2017 Past Participants in Undergraduate Summer Research

2017 Participants

Water desalination through reactive extraction

Madeleine Hamrick, Chemical & Petroleum Engineering

Advisor: Eric Beckman, Chemical Engineering

Pittsburgh Water Microbiome

Austin Kuntz, Bioengineering

Advisor: Kyle Bibby, Civil & Environmental Engineering

Additive manufacturing of energy-saving and energy producing materials

Colleen Hilla, Materials Science & Engineering

Advisor: Markus Chmielus, Mechanical Engineering & Materials Science

Development of Next Generation Nano-Antimicrobials

Cole D'Aurizio, Mechanical Engineering

Advisor: Leanne Gilbertson, Civil & Environmental Engineering

Unlocking energetically efficient water oxidation for ozone disinfectants

Angela Leo, Chemical & Petroleum Engineering

Advisor: John Keith, Chemical & Petroleum Engineering

Machine Learning Blueprints for Green Chelating Agents

Ethan Henderson, Chemical & Petroleum Engineering

Advisor: John Keith, Chemical & Petroleum Engineering

Black silicon etching for solar cells

Maxwell Lindsay, Materials Science & Engineering

Rafael Rodriguez, Materials Science & Engineering

Advisor: Paul Leu, Industrial Engineering

Electrochemistry for sustainable energy conversion and storage

James Hughes, Chemical & Petroleum Engineering

Dean Miller, Chemical & Petroleum Engineering

Advisor: James McKone, Chemical Engineering

Integrating Sustainable Design in Engineering Education

Kaleigh Smith, Mechanical Engineering

Advisor: David Sanchez, Civil & Environmental Engineering

Desalination using polymer crystallization

Joseph Hamm, Chemical & Petroleum Engineering

Advisor: Sachin Velankar, Chemical Engineering

Feeding a Growing World: Towards a Novel Process for Ammonia Synthesis

Eric McElhinny, Chemical & Petroleum Engineering

Kendra LaVallee, Chemical & Petroleum Engineering

Advisor: Goetz Vesper, Chemical & Petroleum Engineering

Automated growth of two-dimensional materials for green electronics

Joji Bronner, Computer Engineering

Advisor: Feng Xiong, Electrical and Computer Engineering

2-D and nanomaterials for Energy Applications

Connor Herring, Chemical & Petroleum Engineering

Advisor: Minhee Yun, Electrical and Computer Engineering

2016 Participants

Use of Equilibrium Chemical Reactions to Enhance Desalination and Heat Transfer Processes

Emily Connor, Chemical and Petroleum Engineering
Advisor: Eric Beckman, Chemical and Petroleum Engineering

Pittsburgh Water Microbiome Project

Marissa Drobitch, Civil and Environmental Engineering
Advisor: Kyle Bibby, Civil and Environmental Engineering

Additive Manufacturing of Magnetocaloric Materials for High-efficiency Cooling

Katerina Kimes, Mechanical Engineering and Materials Science
Advisor: Markus Chmielus, Mechanical Engineering and Materials Science

Piezoelectric Foams for Energy Harvesting

Noah Perryman, Mechanical Engineering and Materials Science
Advisor: William Clark, Mechanical Engineering and Materials Science

Development of Stable Nano-Emulsions as a Sustainable Alternative to Conventional Fertilization Practices

Jasmine Toney, Chemical and Petroleum Engineering
Advisor: Leanne Gilbertson, Civil and Environmental Engineering

Mechanical Test Methods for Full-Culm Bamboo

Jelani Virgo, Civil and Environmental Engineering
Advisor: Kent Harries, Civil and Environmental Engineering

Black Silicon Solar Cells

Bradley Pafchek, Mechanical Engineering and Materials Science
Advisor: Paul Leu, , Industrial Engineering

Carbon Nanotube Based Fuel Cells

Anthony Galante, , Industrial Engineering
Advisor: Paul Leu, , Industrial Engineering

Renewable Energy Integration on the Electric Power Grid

Julia Cope, Electrical and Computer Engineering
Advisor: Thomas McDermott, Electrical and Computer Engineering

Sustainable Energy Generation Using Microbial Fuel Cells

Emily Klonicki, Civil and Environmental Engineering
Advisor: David Sanchez, Civil and Environmental Engineering

Sustainable Design within Engineering Education

Cameron Beichner, Mechanical Engineering and Materials Science
Advisor: David Sanchez, Civil and Environmental Engineering

Design of Lightweight 3D Printed Lattice Structured Parts

John Wallace, Mechanical Engineering and Materials Science
Advisor: Albert To, Mechanical Engineering and Materials Science

Dirt to Diamonds: CO₂ Conversion to Chemicals and Fuels

Patrick Asinger, Chemical and Petroleum Engineering
Isaac Mastalski, Chemical and Petroleum Engineering
Advisor: Goetz Vesper, Chemical and Petroleum Engineering

2015 Participants

Pittsburgh Water Microbiome

Lucy Powell, Biological sciences
Advisor: Kyle Bibby, Civil and Environmental Engineering

On the Sustainability of Forests in PA: how disease, Bambi, & logging threaten regional forest health

Kyle Suess, Biological Sciences
Advisor: Walter Carson, Biological Sciences

Electrochemical Degradation of Persistent Organic Compounds

Alexandra Abram, Chemical and Petroleum Engineering
Advisor: Di Gao, Chemical and Petroleum Engineering

Buckling Behaviour of Full-culm Bamboo

James Bumstead, Civil and Environmental Engineering
Advisor: Kent Harries, Civil and Environmental Engineering

Computational modeling of CO₂ capture and conversion

Ronald Reynolds, Chemical and Petroleum Engineering
Advisor: Karl Johnson, Chemical and Petroleum Engineering

Understanding Complexity and Resilience in Engineered Systems

Andrew Beck, Chemical and Petroleum Engineering
Advisor: Vikas Khanna, Civil and Environmental Engineering.

Fabrication of new nanomaterials for solar cells

Thomas Werkmeister, Engineering Science
Sean McCarthy, Mechanical Engineering and Materials Science
Advisor: Paul Leu, Industrial Engineering

Black Silicon

Mohamed Kashkoush, Industrial Engineering
Advisor: Paul Leu, Industrial Engineering

Data Collection and Analysis of Energy Demands for Sustainable Buildings

Matthew Abbott, Industrial Engineering
Advisor: Thomas McDermott, Electrical and Computer Engineering

Cost-Effective Renewable Energy Integration on Electric Utility Systems

Taeyoung Lee, Electrical Engineering
Advisor: Thomas McDermott, Electrical and Computer Engineering

Sustainable Design within Engineering Education

John Walker, Civil and Environmental Engineering
Advisor: David Sanchez, Civil and Environmental Engineering

Sustainable Energy Generation using Microbial Fuel Cells

Troy Salvatore, Civil and Environmental Engineering
Advisor: David Sanchez, Civil and Environmental Engineering

Mechanical behavior of Novel 3D Printed Cellular Structures for Lightweight Applications

Joseph Brown, Mechanical Engineering and Materials Science
Advisor: Albert To, Mechanical Engineering and Materials Science

Clean and efficient production of energy and chemicals via “chemical looping”

Charles Hansen, Chemical and Petroleum Engineering
Advisor: Goetz Vesper, Chemical and Petroleum Engineering

The Ugly Side of Nano: Towards Understanding Nanotoxicity

Julie Hartz, Chemical and Petroleum Engineering
Sarah Casne, Chemical and Petroleum Engineering.
Advisor: Goetz Vesper, Chemical and Petroleum Engineering

Harnessing microbial power for waste-to-energy biotransformation

Lisa Stabryla, Engineering Science

Advisor: Na Wei, Civil and Environmental Engineering

2014 Participants

Microbiome of Pittsburgh Drinking Water

Maia Hoffman, Chemical Engineering (*Heinz Scholar*)

Advisor: Kyle Bibby, Civil and Environmental engineering

Dynamic Life Cycle Assessment of a Net-Zero Energy Building

Naomi Anderson, Civil and Environmental Engineering (*Heinz Scholar*)

Advisor: Melissa Bilec, Civil and Environmental Engineering

Sustainable Healthcare – Focus on Greenhouse Gas Emissions and Product Design

Delia Scoville, Biochemistry, Oberlin College (*Heinz Scholar*)

Advisor: Melissa Bilec, Civil and Environmental Engineering

Resilience in large scale networks: Implications for critical infrastructure

Trent Dillon, Mechanical Engineering and Materials Science (*Condon Scholar*)

Advisor: Vikas Khanna, Civil and Environmental Engineering

Hybrid Hydrophobic/Hydrophilic Surfaces for Boiling Enhancement

Emma Sullivan, Mechanical Engineering and Materials Science (*Heinz Scholar*)

Advisor: Mark Kimber, Mechanical Engineering and Materials Science

Electrodeposition of oxide semiconductors for solar-fuel conversion

Matthew Duff, Mechanical Engineering and Materials Science (*Bevier Scholar*)

Michael Masley, Mechanical Engineering and Materials Science (*NSF Scholar*)

Advisor: Jung-Kun Lee, Mechanical Engineering and Materials Science

Nanostructures for Solar Cells

Dalton Hale, Industrial Engineering (*Bevier Scholar*)

Donald Volland, Engineering Science (*NSF Scholar*)

Brendan O'Brien, Industrial Engineering (*NSF Scholar*)

Lincoln Walton, Engineering Science (*NSF Scholar*)

Advisor: Paul Leu, Industrial Engineering

Non-Boolean Electronic Circuits for Low Power Computation

Natalie Janosik, Electrical and Computer Engineering (*Heinz Scholar*)

Advisor: Steven Levitan, Electrical and Computer Engineering

Nanoscale Characterization of Solar Cells

Brandon Contino, Electrical and Computer Engineering (*Bevier Scholar*)

Advisor: Guangyong Li, Electrical and Computer Engineering

Case Studies for Sustainable Systems Modeling

Stephanie Cortes, Electrical and Computer Engineering (*Bevier Scholar*)

Advisor: Tom McDermott, Electrical and Computer Engineering

High Efficiency Cook Stove for the Kuna Yala of Panama

Allison McCurdy, Mechanical Engineering and Materials Science (*Bevier Scholar*)

Jessica Schneider, Mechanical Engineering and Materials Science (*Bevier Scholar*)

Advisor: Laura Schaefer, Mechanical Engineering and Materials Science

Towards Understanding Nanoparticle Toxicity

Kimaya Padgaonkar, Chemical and Petroleum Engineering (*MCSI scholar*)

Advisors: Goetz Vesper, Chemical and Petroleum Engineering

Ipsita Banerjee, Chemical and Petroleum Engineering

Chemical Looping – A Flexible Approach Towards Process Intensification

Jonathan Hughes, Chemical and Petroleum Engineering (*Frank & Daphna Lederman Scholar*)

Natalie Isenberg, Chemical and Petroleum Engineering (*Bevier Scholar*)

Advisor: Goetz Vesper, Chemical and Petroleum Engineering

‘Greening’ Heterogeneous Catalysis through Nanoconfinement

Bronson Lockwood, Chemical and Petroleum Engineering (*Bevier Scholar*)

Advisor: Goetz Vesper, Chemical and Petroleum Engineering

Too Valuable To Burn: Utilizing Shale Gas for Chemicals Production

Jeffrey Schallick, Chemical and Petroleum Engineering (*Bevier Scholar*)

Advisor: Goetz Vesper, Chemical and Petroleum Engineering

2013 Participants

Understanding resilience in energy production landscapes: changes in the coupled hydrologic system

Angela Anderson, Civil Engineering (*Heinz Endowments Scholar*)

Robert Wallace, Chemical Engineering (*Bevier Scholar*)

Advisor: Dan Bain, Geology

Sustainable Science and Engineering Education

Jayne Marks, Civil Engineering (*Heinz Endowments Scholar*)

Advisor: Melissa Bilec, Civil & Environmental Engineering

High-Performance Building Automation and Design

Corey Woloschin, Civil Engineering (*Heinz Endowments Scholar*)

Advisor: Melissa Bilec, Civil & Environmental Engineering

Design of Oil-Absorbing Media for Environmental Cleanup

Andrew Kittka, Chemical Engineering (*Heinz Endowments Scholar*)

Advisor: Di Gao, Chemical & Petroleum Engineering

Evaluating the environmental sustainability of infrastructure compatible hydrocarbon biofuels

Karen Kaminsky, Chemical Engineering (*Frank and Daphna Lederman Scholar*)

Advisor: Vikas Khanna, Civil and Environmental Engineering

Enhancing efficiency of pool boiling

Ed Kraft, Mechanical Engineering (*Heinz Endowments Scholar*)

Advisor: Mark Kimber, Mechanical Engineering & Materials Science

Core-shell Photoelectrochemical Cells for Solar Hydrogen Production

Thomas Nilson, Engineering Science (*Bevier Scholar*)

Colin Detweiler, Materials Engineering (*NSF Scholar*)

Advisor: Jung-Kun Lee, Mechanical Engineering & Materials Science

Extremely Affordable Solar Cells

Brendan O’Brien, Industrial Engineering (*Scalise Industries Scholar*)

Miriam Rathbun, Mechanical Engineering (*NSF Scholar*)

Advisor: Paul Leu, Industrial Engineering

All-solution-processed solar cells

Samantha Small, Computer Engineering (*Douglas Condon Scholar*)

Christian Bottenfield, Engineering Physics (*NSF Scholar*)

Advisor: Guangyong Li, Electrical and Computer Engineering

Nanotoxicity – The other side of nano

Brittany Givens, Chemical Engineering (*Bevier Scholar*)

Advisor: Goetz Vesper, Chemical & Petroleum Engineering

Nanoencapsulation- A novel approach towards energy efficient processes

Joshua Maskrey, Chemical Engineering (*Bevier Scholar*)

Advisor: Goetz Vesper, Chemical & Petroleum Engineering

NSF: International Research Experiences for Students

Evaluation of bamboo-to-bamboo connections

Andrew Beck, Chemical Engineering

Eric Belski, Mechanical Engineering

Rebecca Glucksman, Civil Engineering

Steven Marusic, Chemical Engineering

Advisor: Kent Harries, Civil and Environmental Engineering

2012 Participants

Chemical looping reforming- A novel, efficient process for CO₂ utilization

Louis Miller, Chemical Engineering (Frank and Daphna Lederman scholar)

Martin Roberts, Chemical Engineering (Roberta Luxbacher scholar)

Advisor: Goetz Vesper, Department of Chemical and Petroleum Engineering

Critical Materials: Resilience and Sustainability Implications for the U.S. Economy

Berlyn Hubler, Chemical Engineering (Construction Financial Management Assoc. scholar)

Greg Zaines, Physics (Bevier Scholar)

Advisor: Vikas Khanna, Department of Civil and Environmental Engineering

Wireless sensor networks for environmental monitoring research

Brian McGlynn, Civil and Environmental Engineering (Scalise Industries scholar)

Advisor: Xu Liang, Department of Civil and Environmental Engineering

Extremely affordable solar cells to address energy poverty

Peter Brendel, Industrial Engineering (Scalise Industries scholar)

Ibrahim Chebib, Electrical and Computer Engineering (Douglas Condon scholar)

Advisor: Paul Leu, Department of Electrical and Computer Engineering

Assessment of the green infrastructure installations occurring in Schenley Park

Trevor Bublitz, Civil and Environmental Engineering (Bevier Scholar)

Bruk Berhanu, Civil and Environmental Engineering (Bevier Scholar)

Advisor: Dan Bain, Department of Geology

Point-of-use water treatment technologies for low-income communities in the less developed world

Douglas Kopp, Civil and Environmental Engineering (Bevier Scholar)

Advisor: Ian Nettleship, Department of Mechanical Engineering and Materials Science

Energy-efficient filtration

Alyssa Kunkel, Chemistry (Bevier Scholar)

Christina O'Donnell, Chemical and Petroleum Engineering (Bevier Scholar)

Advisor: Haitao Liu, Department of Chemistry

NSF: International Research Experiences for Students

Bamboo Gridshells

Katherine Brown, Chemical Engineering

Patrick Eells, Mechanical Engineering and Materials Science

Michael Nites, Industrial Engineering

Mathew Pagliassotti, Electrical and Computer Engineering

Abigail Stein, Civil and Environmental Engineering

Chris Zimmerman, Bioengineering

Advisors: Dr. Bhavna Sharma, Dr. Kent Harries and Michael Richard

2011 Participants

Self-powered Sensors for Energy Efficient Buildings

Kent Berthoud, Physics & Astronomy

Advisor: Dr. Buddy Clark

Microalgae as Fuel

George Zaimes, Physics Department

Advisor: Dr. Vikas Khanna

Nano-characterization of Silver-nanoparticles deposited on Porous Ceramics or Geopolymers for Sustainable low-cost ceramic water filters

Michael Melia, Mechanical Engineering & Materials Science

Advisor: Dr. Ian Nettleship

Comparative life cycle analysis for bamboo portal frame construction

Marianne Choi, Civil & Environmental Engineering

Ahra Kwon, Chemical & Petroleum Engineering

Oren Lawit, Chemical & Petroleum Engineering

Preston Macready, Civil & Environmental Engineering

Chad Ringel, Chemical & Petroleum Engineering

Jennifer Zettl, Civil & Environmental Engineering

Advisors: Drs. Kent Harries, Melissa Bilec, Bhavna Sharma and Michael Richard

Exploring Smart Materials for Reducing Energy Demands in Buildings

Minao Shen, Mechanical Engineering & Materials Science

Advisor: Dr. Buddy Clark

Enabling the Utilization of Nanoporous Aluminum for Sustainable Structures by Understanding its Mechanical Properties

Jiaxiang Tao, Civil & Environmental Engineering

Advisor: Dr. Albert To

Net-zero Energy School Buildings- Development of the Education Module

Tylor Balson, Industrial Engineering & Ellis Mays, Civil & Environmental Engineering

Advisor: Dr. Bhavna Sharma

Smart Grid Control Methodology Development for Integrated Generation Management

Ansel Barchowsky, Electrical & Computer Engineering

Advisor: Dr. Greg Reed

Resource Recovery from Waste Water

Matt Weschler, Civil & Environmental Engineering

Advisor: Drs. Amy Landis and Willie Harper

Controls and Dynamic Life Cycle Assessment

Peter Stegman, Electrical & Computer Engineering

Advisor: Dr. Alex Jones

2010 Participants

An Analysis of Humanitarian Logistics Relief in Haiti

Matthew Yandura, Industrial Engineering

Advisor: Dr. Brian Norman

Construction Success Factors for Net Zero Energy Homes

Katelyn Ryan & Michael Sweriduk, Civil & Environmental Engineering
Advisor: Dr. Melissa Bilec

Biological Processes Involved in Water Quality

Christine Currie, *Columbia University* & **Patrick Saboe**, *University of New Haven*
Chemical and Petroleum Engineering
Advisor: Dr. Willie Harper

Designing Self-Healing Materials

Chet Gnegy, Electrical Engineering
Advisor: Dr. Anna Balazs

Biofuels Grown on Marginal Lands

Christopher Rovensky, Chemical Engineering
Emily Wolff, Civil & Environmental Engineering
Julie Schalles, Mechanical Engineering & Materials Science
Advisor: Dr. Amy Landis

End-of-Life Compostables

Nicole Ostrowski, Mechanical Engineering & Materials Science
Nicholas Stamatakis, Industrial Engineering
Advisors: Drs. Amy Landis and Melissa Bilec

Exploration of New Designs in Energy Harvesting

Jon Bumstead, Mechanical Engineering, Physics, Astronomy
Matt Paterson, Mechanical Engineering & Materials Science
Advisor: Dr. Buddy Clark

Green Roof for Soldiers and Sailors

Marianne Choi, Civil & Environmental Engineering
Advisor: Dr. Jason Monnell

Icing and Condensation at Superhydrophobic Surfaces

Michael Malencia, Engineering
Advisor: Dr. Di Gao

Improving the Durability of Sustainable Ceramic Water Filters for Low-income Communities

Daniel Walsh, Mechanical Engineering & Materials Science
Advisor: Dr. Ian Nettleship

Kingslev- Alternative Construction Opportunities

Madeline Allen-Sandoz, Civil & Environmental Engineering
Matthew Balsbaugh, Environmental Studies
Ryan Carmichael, Engineering
Advisors: Drs. Melissa Bilec, Vanessa Gomes Da Silva, Maristela Gomes Da Silva

Oleophobic and Hydrophilic Coatings for Chemical Free Cleaning and Water-oil Separation

Benjamin Dickinson, Chemical & Petroleum Engineering
Advisor: Dr. Di Gao

Optimization and Life Cycle Assessment

Oliver Green, Civil & Environmental Engineering
Kyle Shatzer, Civil Engineering, *Carnegie Mellon University*
Advisors: Dr. John Brigham, Amy Landis, Melissa Bilec

Physical and Mechanical Modeling of Complex Biomaterials: Bamboo

Gautam Vangipuram, Bioengineering
Advisors: Drs. Kent Harries and John Brigham

Pool Boiling Enhancement for Nanostructured Surfaces

Mike Kristufek, Mechanical Engineering & Materials Science
Advisor: Dr. Mark Kimber

Smart Grid Control Methodology Development for Integrated Generation Management

Ansel Barchowsky, Electrical & Computer Engineering
Christopher Lippert, Mechanical Engineering & Materials Science
Advisor: Dr. Greg Reed

The Copper Coil: Design of a New Household Water Storage System for the Less Developed World

Joseph Landry, Mechanical Engineering & Materials Science
Advisor: Dr. Ian Nettleship

Two Sides of “Na no” : Carbon Capture with a Na no encapsulated Sorbent

Christopher DiAndreth, Chemical & Petroleum Engineering
Advisor: Dr. Goetz Vesper

Two Sides of “Na no” : Toxicity of Free and Encapsulated Na no materials

Craig Stevenson, Chemical & Petroleum Engineering
Advisor: Dr. Goetz Vesper

Solar Power in Vietnam

Chris Thai, Mechanical Engineering and Materials Science
Advisor: Dr. Laura Schaefer

2009 Participants

Children's Hospital Green Building Metrics

Matthew Geary, Civil and Environmental Engineering
Advisor: Dr. Melissa Bilec

City of Pittsburgh- LED Life Cycle Assessment

Douglas Hartley Civil and Environmental Engineering
Cassandra Jurgens Civil and Environmental Engineering
Eric Zatcoff Civil and Environmental Engineering
Advisors: Drs. Melissa Bilec and Joe Marriott

Electricity Reduction for Development Properties- New & Existing

Matt Kaminski Civil and Environmental Engineering
Kathleen Kessler Civil and Environmental Engineering
Abigayle Sterle Civil and Environmental Engineering
Advisors: Drs. Melissa Bilec and Joe Marriott

Energy Harvesting for Improved Power Management in Buildings

Anthony Machi, Mechanical Engineering and Materials Science
Advisor: Dr. Buddy Clark

Life Cycle Inspired Chemical Design

James Cregg Chemical Engineering
Michaelangelo Tabone Chemical Engineering
Advisors: Drs. Eric Beckman and Amy Landis

Microbial Fuel Cells

Charles Covel
Jessica Gardner
David Rounce
Electrical and Computer Engineering

Advisors: Dr. Minhee Yun and David Sanchez

New Microstructural Designs for Low-Cost Ceramic Water Filters

Nicole Ostrowski, Mechanical Engineering and Materials Science

Advisor: Dr. Ian Nettleship

Sustainable Disinfection

Jennifer Howells, Civil and Environmental Engineering

Advisor: Dr. Leonard Casson

Synthesis of Functional Core-Shell Nanomaterials for Clean Energy Production

Rebecca Byrnes, Chemical & Petroleum Engineering

Advisor: Dr. Goetz Vesper

2008 Participants

Development of Biofuels for Atmospheric Temperature Supply in Diesel Vehicles

Maura Koehle & Todd Moyle

Chemical & Petroleum Engineering

Advisor: Dr. Eugene Wagner (chemistry)

East Liberty Development Project

James Ostendorf

College of Arts and Sciences

Scott Streiner

Computer Engineering

Wafa Koubaa

Chemical & Petroleum Engineering

Advisors: Drs. Laura Schaefer & Melissa Bilec

Processing & Properties of Renewable Polymers based on Thermoplastic Starch

James Goetz, Chemical Engineering (Penn State University)

Advisor: Dr. Sachin Velanker

Remediation Potential of Biofuel Feedstocks

Bradley Harken, Civil & Environmental Engineering

Advisors: Drs. Laura Schaefer, Melissa Bilec, Amy Landis, Eugene Wagner

Development of Nanocomposite Materials via Metal Impregnation for Clean Energy Production

Nicole Hoehn, Chemical & Petroleum Engineering

Advisor: Dr. Goetz Vesper

Methodology for Assessing Material Resistance Factors for Structural Bamboo

Derek Mitch, Civil & Environmental Engineering

Advisor: Dr. Kent Harries

A Risk Assessment of Sea-Level Rise as a Coastal Hazard for Regions of the Pacific

Mary Beth Oshnack, Civil & Environmental Engineering

Advisor: Dr. Kent Harries

Microstructure Analysis of Clay Ceramic Materials treated with Silver Nanoparticles for use in Low Cost Water Filters in Brazil

Nicole Ostrowski (IRES), Mechanical and Materials Science Engineering

Advisor: Dr. Ian Nettleship

Fabrication of Dye-Sensitized Solar Cells

Paul Shin, Civil & Environmental Engineering

Advisor: Dr. Di Gao

Catalytic Microreactors for Clean, Decentralized Combustion Reactions

Tim Tallon, Chemical & Petroleum Engineering

Advisor: Dr. Goetz Vesper

2007 Participants

Investing the Potential use of Untreated Waters for Cooling Tower Make up in Coal Power Plants

Scott Duda, Civil and Environmental Engineering (Cornell)

Advisor: Dr. Radisav Vidic

Ceramics Processing and the Usefulness and Effectiveness of Ceramic Materials in Environmental and Energy Efficiency Application

Benjamin Groth, Materials Science and Engineering

Advisor: Dr. Ian Nettleship

Research the Degradation of Building and Infrastructure Materials Caused by Environmentally Harmful Substances

Kyle Kaminski, Civil and Environmental Engineering

Advisors: Drs. Julie Vandenbossche and Robert Ries

Study of the Safe and Controllable Combustion of Hydrogen

Angela Noll, Chemical & Petroleum Engineering

Advisor: Dr. Goetz Vesper

Mapping of Average Groundwater Levels Across the US

Heather Pry, Civil and Environmental Engineering

Advisor: Dr. Xu Liang

Automated Biodiesel Production: Design of Distributed/ Greener Energy Systems

Justin Sciulli, Mechanical Engineering

Advisor: Dr. Jeff Vipperman

Watershed Modeling for the Sustainability of Panther Hollow Run

Adam Smelko, Bioengineering

Advisor: Dr. Dan Budny

Water Purification via Micrometer-sized Structures Synthesized by Hierarchical Self-assembly of Nanoparticles

Kevin Tamm, Chemical Engineering

Advisor: Dr. Di Gao

Use of Piezoelectric Materials to Create a Self-powered Occupancy Sensor for Sustainable Buildings

Andrew Thornburg, Mechanical Engineering

Advisor: Dr. Buddy Clark

2006 Participants

Study into the Use of Bamboo as a Hazard Mitigating Construction Material

Mark Beacraft, Civil & Environments Engineering

Advisor: Dr. Kent Harries

Ethical Sustainability Surrounding the Brazilian Charcoal Industry

Aaron Beamguard, Computer Engineering

Advisor: Dr. Larry Shuman

Using Rainwater to Solve Bangladesh's Tainted Water Problem

Andrew Corris, Chemical Engineering

Advisors: Drs. Eric Beckman and Robert Parker

Development of Effective Cooling Strategies for Oxv-fuel/Hydrogen Turbine Systems

Todd Locker, Mechanical Engineering

Advisor: Dr. Laura Schaefer

Minimizing Aluminum Toxicity from Acid rock Discharges

Evan Murphy, Environmental Engineering

Advisor: Dr. Ron Neufeld

Filtration at the Nanoscale: Environmental Protection, Water Purity and Nanoparticle Transport

Patricia Nichols, Materials Science and Engineering

Advisor: Dr. John Barnard

Water Transport and Use in Irrigation

Phae Papas, Chemical & Petroleum Engineering

Advisor: Dr. Robert Parker

Design and Development of Super Water and Oil Repellent Surfaces

Tyler Price, Chemical & Petroleum Engineering

Advisor: Dr. Di Gao

Vandergrift Revitalization

Steven Hein

Bioengineering

Yi Zhuang

Industrial Engineering

Advisor: Dr. Lisa Weiland

2005 Participants

Ramifications of Design of a Non-Chlorine Alternative for PVC

Jewel Barber & Robert Brasington, Chemical Engineering

Advisor: Dr. Eric Beckman

Nanoparticles and their Interactions with Water

Elizabeth Clark, Materials Science and Engineering

Advisor: Dr. John Barnard

Investigating Alternate Sources of Lighting for a Household Environment

Andrew Corris, Chemical Engineering

Advisor: Dr. Marlin Mickle

Cement Bonded Wood Composites

Molly McClelland, Civil and Environmental Engineering

Advisor: Dr. Amir Koubaa

Analysis of the Shrinkage Characteristics of High Slag Mixes and the Influence of Ambient Temperatures on the Hydration Process of Slag Mixes

Angela Heinzman, Civil and Environmental Engineering

Advisor: Dr. Julie Vandenbossche

Evaluating the Use of Phytoextraction by Arsenic-accumulating Ferns & Grasses as a Means of Water

Monica Higgins & Arica Santucci, Civil and Environmental Engineering

Advisor: Dr. Radisav Vidic

Self-Healing of Surface Coatings for Green Construction

Benjamin Slavin, Computer Engineering

Advisor: Dr. Steven Levitan

2004 Participants

How Plants can be Identified and Classified as Phytoremediating Agents and Finding relevant Application of Their Use in Land and Water Reclamation

Chantal Blake, Civil and Environmental Engineering
Advisor: Dr. Joseph MacNeil, Chatham College

Proper Materials and Structure for Optimum Performance of Green Roofs in South Western PA

Daniel Bliss, Civil and Environmental Engineering
Advisor: Dr. Robert Ries

Green Structural Neurology- A Nervous System for Green Buildings

Justin Keogh, Electrical Engineering
Advisor: Dr. Marlin Mickle

Examining the Green Buildings of Healthcare Structures

Brett Rettura, Bioengineering
Advisors: Drs. Kim Needy & Robert Ries

Self-Healing of Surface Coatings for Green Construction

Benjamin Slavin, Computer Engineering
Advisor: Dr. Steven Levitan