

Welcome to the 2013 Student Summer Research Poster Symposium

This is the third year that we have had a Student Summer Research Poster Event in September, and it is clear that we are building toward a tradition. In the previous two years we shoehorned an almost overwhelming number of excellent research posters into the Marlo Room, which were viewed by hundreds of members of the Lafayette community. As I look over the titles of the posters for the 2013 symposium I am confident that we will match if not exceed the quality and quantity of work that was presented in prior years.



from faculty research grants, income from endowed gifts, and Lafayette's operating budget. (If you'd like to contribute, feel free to talk to me!) And while this is a substantial use of funds that could be otherwise allocated, it is also an excellent investment that provides outstanding opportunities for both the faculty and the students. The depth of Lafayette's commitment to undergraduate research is perhaps best captured by the fact that the majority of

graduating seniors report having worked directly with a faculty mentor on a research project, a number significantly higher than at colleges and universities across the country, and even higher than most other highly selective small colleges, where undergraduate research has been nurtured for decades.

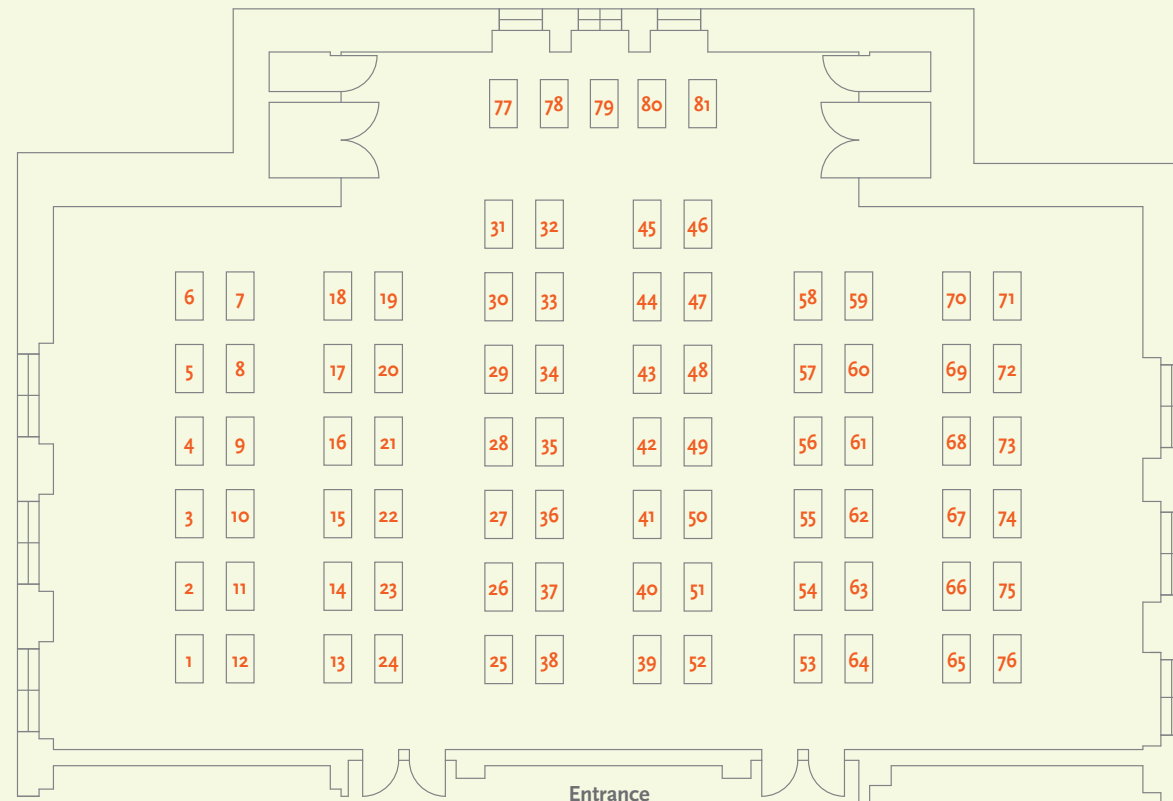
Lafayette is blessed to have so many imaginative and productive scholars among the students and faculty. Today you can see on display some of the results discovered in the summer of 2013. While you look at these posters, you should listen for hints indicating just how often these student-faculty research teams also generated transformative experiences for those involved.

—**John Meier**
Associate Provost for Faculty Development
and Research Services

In the summer of 2013 there were over 150 Lafayette students working on research projects. Those who were on campus had the opportunity to hear three excellent talks given by Professors Maria Chudnovsky (Columbia), Lisa Gabel (Lafayette), and Lars Hedin (Princeton). Professor Dan Sabatino took us through the ten-episode series Connections. These events reinforced the experiences that were occurring across campus all summer, experiences that gave Lafayette students practical experience with the difficult and creative work needed to explore actively contested questions, often making publishable contributions.

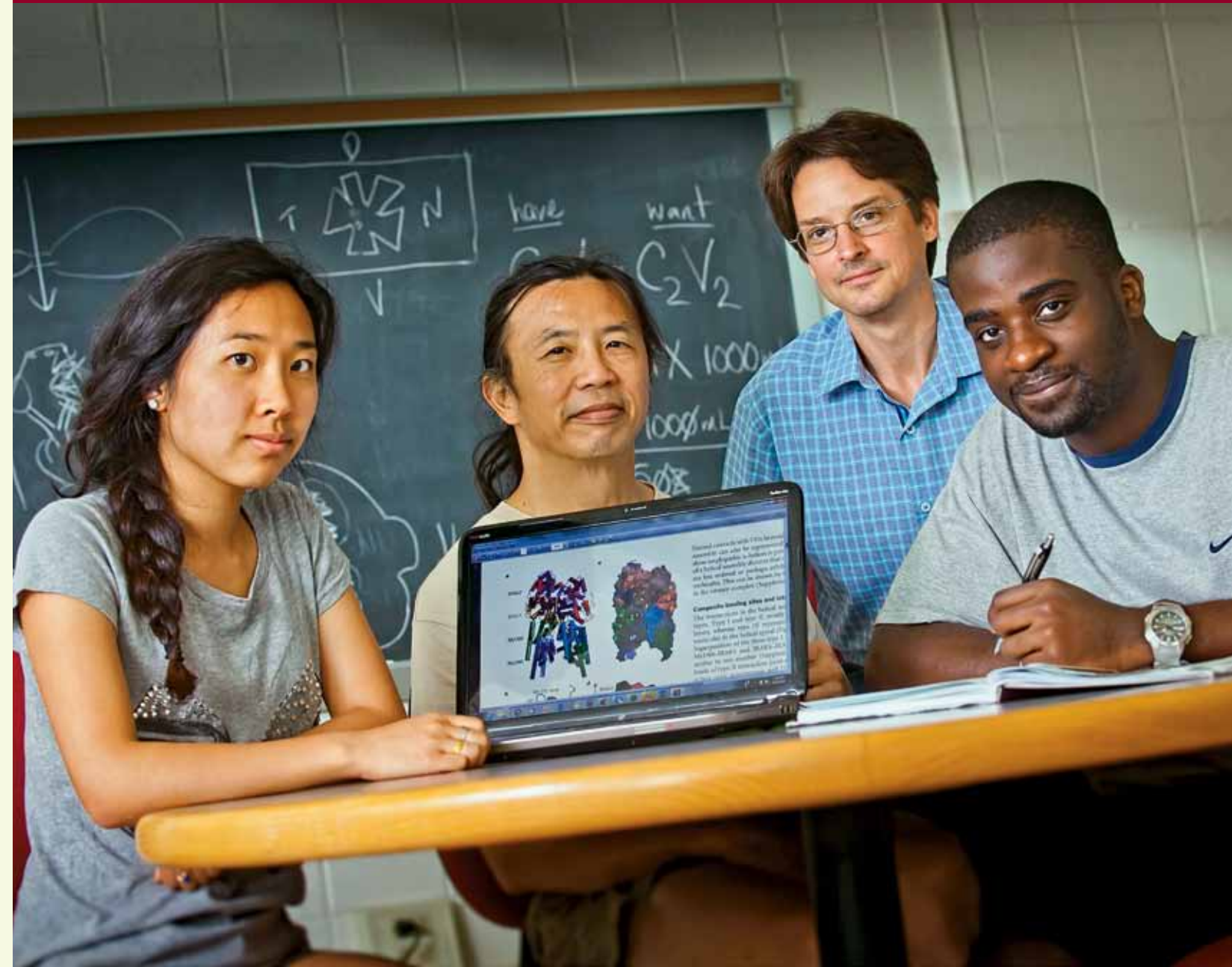
It is not inexpensive to offer research experience to this many Lafayette students. In fact, our annual expenditures for undergraduate research are in excess of \$700,000. These funds come

POSTER LAYOUT IN MARLO ROOM



STUDENT SUMMER RESEARCH POSTER SYMPOSIUM

September 23, 2013 | 4:15 p.m – 5:30 p.m.



LAFAYETTE

Student Summer Research Poster Titles and Authors

A layout of the posters in the Marlo room can be found on the back of this brochure.

Poster No. 1 Primer walking for the sequencing of the chitin synthase gene in the oomycete *Phytophthora sojae*

Emma Brenner

No. 2 Chitin Synthase Sequencing and Expression Analysis

Lauren Hinkel and Manuel Ospina-Giraldo

No. 3 Characterization of Family 1 Polysaccharide Lyases in *Phytophthora Sojae*

Jacob Alexander and Manuel Ospina-Giraldo

No. 4 Qualitative Mycelial Expression of Pectin Methylesterase in *Phytophthora Sojae*

Brent Horowitz and Manuel Ospina-Giraldo

No. 5 Molecular and Microbial Ecology: Investigating mercury-resistant bacteria in Oughoughton Creek

Lindsay Marko, Laurie F. Caslake, and Nancy M. Waters

No. 6 The effects of furanone 56, a quorum sensing inhibitor, on biofilms formed by *Pseudomonas fluorescens* MIC102L in sandy soil.

Jasmine Saini, Michael Galperin, Mary Roth, and Laurie Caslake

No. 7 Constitutively active Rheb and cerebellar granule cell morphology and calcium dynamics

Blair Gallante and Cathryn Kubera

No. 8 Computational Methods to Analyze Echolocation in *Eptesicus fuscus*

Ryan Himmelwright, Laura Kloeppe, Jason Gaudette, and James Simmons

No. 9 Impact of small dams on water quality and macroinvertebrates in the Bushkill Creek

Joshua Hitchings and Megan Rothenberger

No. 10 Distribution of the Red-eared Slider in Northern and Eastern United States

Rebecca LaRosa, James Dearworth, and Megan Rothenberger

No. 11 Imaging Cellular Activity in the Retina of the Turtle to Reveal the Function of Melanopsin

Eric Cannon, Jame Dearworth, and Cathryn Kubera

No. 12 The Immunosuppressive Effect of Damage Associated Molecular patterns in Tumor Bearing Mice

Ryan O'Sullivan and Dr. Robert Kurt

No. 13 Understanding signaling in 4T1 cells using Co-immunoprecipitations and Computer Modeling

Tiffany Phuong, Robert Kurt, and Chun Wai Liew

No. 14 Effects of safety conditioning on expression of BDNF in the prefrontal cortex of rat brain

Jacob Ricca

No. 15 The Cell Cycle Effects of Delta Np63 alpha and SAMD9L in H226 Lung Squamous Cell Carcinomas

Kyle Tucker, Corrie Gallant-Behm, and Joaquin Espinosa

No. 16 Reactive Oxygen Species During Pollen Germination in *A. thaliana*

Kate Warren, Alexandra Lazzara, Mai Nguyen, Andre Rafizadeh, and Cassie Kanzler

No. 17 On The Road To Better Health: Diversifying Diets in the West Ward

Allie Nagurney, Drew Williams, Emily Zangla, Devon Palermo, Audrey DaDalt, and Guanxiong Zhou

No. 18 Young Moms in the U.S., U.K. & Canada: An Overview of Recent Research

Morgan Loeffler and Professor Deborah Byrd

No. 19 The Relationship Between Greek Life and Alcohol Use

Guilherme Ferreira de Avila and Professor Susan Averett

No. 20 Diels-Alder Reactions of gamma-Hydroxybutenolides

Daniel J Beideman and William H Miles

No. 21 Complexation of 1-phenyl-8-methylnaphthalene Derivatives

Michael J. Robinson and William H. Miles

No. 22 Carbon Dioxide Reduction Catalysis

Lauren Cesanek and Nabeel Chaudary

No. 23 Investigating the role of the J-protein Swaz in the propagation of the yeast prion [URE3]

Elizabeth Troisi, Michael Rockman, and Justin Hines

No. 24 Functional diversification of Hsp40: distinct J-protein requirements for two yeast prions.

Phil Nguyen, Zachary Sporn, and Justin Hines

No. 25 Cell Phones, Innovation, and Environmental Impact

Kelly Loughney, Brad Marshall, Professor Chris Ruebeck, and Professor Jeff Pfaffman

No. 26 Making a More Accurate and Visual Model of Cell Phone Innovation

Brad Amadeus Marshall, Kelly Loughney, Professor Ruebeck, and Professor Pfaffmann

No. 27 Environment Representation for an Agent-Based Water Model

Jawad Awan, Mai Ao, Prof. Jeffrey Pfaffmann, and Prof. Chris Ruebeck

No. 28 Capacity-Constrained Oligopolistic Competition

Yue Yin and Prof. Ruebeck

No. 29 The Changing Distribution of Inflation Forecast Errors

Shannon Nitroy, Ed Gamber, Jeff Liebner, and Julie Smith

No. 30 An economic analysis of syngas production by the Zn/ZnO solar thermochemical fuel production cycle

Morgan McGuinness, Julia Nicodemus, and Rijan Maharjan

No. 31 Lafayette College STEM Camp 2013

Rebecca Citrin, Emily Crossette, and Stacey-Ann Pearson

No. 32 Calculating our Estrogen Footprint: Testing a Procedure to Quantify the Estrogenic Compounds Released by Wastewater Treatment Plants

Emily Crossette

No. 33 Exploring the Benefits of a GIS-Based Bridge Management System

Christina Marzocca

No. 34 Nazareth Borough Municipal Authority GIS Updates

Dennis O'Hene, Luning Zhang, and Zili Wang

No. 35 Bushkill Creek Watershed Analysis

Leikune Aragaw and Emily McGonigle

No. 36 Finite Element Analysis of Buckling Behavior using Abaqus

Ye Zin and Anne Raich

No. 37 Death in the Pot: Changing Perceptions of Adulteration and Purity

Matt Plishka

No. 38 Digitizing and Searching WA Literacy Narratives

Anthony Baker

No. 39 Down The Hill

Julia Guarch

No. 40 Responding to Domestic Violence: The Case of the Baltic States

Heather Hughes and Katalin Fabian

No. 41 A Frontier of Global Environmental Politics: Controversies of Fracking in Eastern Europe

Andrew Keck and Dr. Katalin Fabian

No. 42 The Easton Library Company, 1811-1862: A unique view into the "readership" of a 19th century community

Gavin Jones and Alena Principato

No. 43 Software Tools for Geology Data Management and Project Planning

Prabhat Rimal and John Keller

No. 44 High-Precision Atomic Structure Measurement using Dipole-Forbidden Laser Spectroscopy

Alexandria Battison and Andrew Kortyna

No. 45 StratLogger: A Field Stratigraphy iPad Application as a Pedagogical Tool

Lucy McKnight, Professor Chun Wai Liew, and Professor David Sunderlin

No. 46 Thermal Expansion in the Pyroxene Mineral System

Amanda Leaman, Matthew Morris, Guy Hovis, and Derek Morris

No. 47 Warm Periods of the Past: A Paleoclimate Perspective on Climate Change

Hollis Miller, Kira T. Lawrence, Laura C. Peterson, Christopher Kelly, Alex Brannick, and Julia Seidenstein

No. 48 Surface/Groundwater Relations and Drainage Density Analysis of Carbonate and Shale/Slate Regions in Eastern Pennsylvania

Drew Williams, Sarah Hardy, Dru Germanoski, John Wilson, and Jesse Kendra

No. 49 Determining Cellular Proliferation Rates on Thermoresponsive Substrates

Selin Demirler and Lauren Anderson

No. 50 Measuring Cell Heights with Confocal Microscopy

Allyson Hill and Lauren Anderson

No. 51 Cellular Response to Thermoresponsive Polymer Coated Nanoparticles and Cell Culture Substrates

Matthew J. Warrener, Caitlin E. Young, and Christopher R. Anderson

No. 52 Protein and Cell Interactions with Smart Biomaterial Substrates

Caitlin E. Young, Matthew J. Warrener, and Christopher R. Anderson

No. 53 Synthesis and characterization of thermo-responsive 2-(2-methoxyethoxy)ethyl 2-methylacrylate copolymer co- oligo(ethyleneglycol) methyl ether methacrylate stabilized nanoparticles

Dana Lapides, Filippo Gambinossi, and James Ferri

No. 54 Design and Characterization of a Microfluidic Surface Tensiometer for Compositional Analysis

Matthew A. Jouny and Joshua A. Levinson

No. 55 Study of Alginate Droplet Formation in Microfluidic Devices

David T. Woods and Joshua A. Levinson

No. 56 Isotherm of Dyeing Wool with Cochineal Dye

Xingjian (Max) Ma and Professor Polly Piergiovanni

No. 57 Bottled Sunshine: Solar Thermal Energy Storage

Taimoor Sohail

No. 58 The study of autogenerating hairpin vortices

Rijan Maharjan and Daniel R Sabatino, PhD

No. 59 Computational Flow Simulation of a Gas Turbine Blade Row

Kevin McHugh and Professor Daniel Sabatino

No. 60 Implications of Varying the Cerebral Vascular Permeability for the Treatment of Non-communicating Hydrocephalus

Eamon T. Campolettano and Joshua H. Smith

No. 61 Galling Resistance of Non-lubricated Material Couples

Scott Hummel and Kristofer Meehan

No. 62 Toward improved hemodynamic models for renal blood flow

Apratim (Appy) Mukherjee, Jenn Stroud Rossmann, and Scott Albert

No. 63 The Yao Graph Y_5 is a Spanner

Ge Xia and Wah Loon Keng

No. 64 Image Processing and Biological Shape Modeling Using Blumá™s Medial Axis

Sean Waters, Robert Root, Kathryn Leonard, Marianne E Porter, Chun Wai Liew, John H Long, Jr

No. 65 Application of Markov model in Life insurance.

Evan Fisher and Anni Gao

No. 66 The Subtree Polynomial: A Generating Function on Graphs

Alex Chin, Kellie MacPhee, and Charles Vincent

No. 67 The application of real-time PCR for the measurement of absolute telomere length

Rachel Barron, Alcibiades Villarreal, Deborah Doens, and Dr. Gabriella Britton

No. 68 Are you smarter than a mouse?: Comparison of adults, children, and mice in virtual and physical Hebb-Williams maze tests

Rachel Hamilton, Anna-Lisa Ashman, Yiming Chen, and Nicholas Escalona, Jeff Pfaffmann, and Lisa Gabel

No. 69 Improving participant performance on mu-based brain-computer interfaces

Victoria Corbit, Maura Schlussek, Yih-Choung Yu, and Lisa Gabel

No. 70 Remote-controlled devices using brain-computer interfaces

Thomas Fuller, Rameel H. Sethi, Yih-Choung Yu, and Lisa A. Gabel

No. 71 Post-reinforcement pausing in variable interval schedules

Marisa Taddei and Robert W. Allan

No. 72 Electroencephalographical Correlates of Grasp Selection

Madeline Friese and Luis Schettino

No. 73 Gut Feelings: A Psychophysiological Disgust Task

Stephanie Kass

No. 74 Is the expectation of social contingency essential to toddlers' learning from video chat?

Lauren Steinbeck and Makenzie Danis

No. 75 Latency of digits when grasping objects

Larry Z. Sanchez and Luis Schettino

No. 76 Jumping Fish and Locking Dams: Examining Governance Responses to Asian Carp in the Upper Mississippi River

Lucy Bass, Alexandria Sousa, and Rachel Brummel

No. 77 Defining and Analyzing Galaxy Clusters

Thomas Day and Peter Koval

No. 78 Introduction to Pulsars and Rotating Radio Transients

Joseph Kwasizur, Allison Matthews, and David Nice

No. 79 Analyzing Single Pulses of Rotating Radio Transients

Allison Matthews, Joseph Kwasizur, and David Nice

No. 80 Controlling Magnetic Fields to Trap Ultracold Atoms

Hannah Weaver, Roman Chapurin, Rabin Paudel, Tara Drake, Yoav Sagi, and Deborah Jin

No. 81 The Amplitude of Sidebranches in the Dendritic Crystal Growth of Ammonium Chloride

Ian Crawley and Andrew Dougherty