

# FALL FRONTIERS

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A RESEARCH POSTER EXHIBITION

THE 4TH ANNUAL FALL CELEBRATION OF  
UNDERGRADUATE SCHOLARSHIP, INNOVATION,  
AND CREATIVITY

October 26, 2016

5:00 p.m. – 7:00 p.m.

Wilbur Cross South Reading Room

**UConn**

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**ENRICHMENT PROGRAMS**

OFFICE OF  
UNDERGRADUATE RESEARCH

**Sponsored by**  
**The University of Connecticut**

Office of Undergraduate Research  
Enrichment Programs  
Honors Program

## **About Frontiers in Undergraduate Research**

The Office of Undergraduate Research has sponsored the Frontiers in Undergraduate Research Poster Exhibition each spring for the past nineteen years. In Spring 2016, over 260 students presented posters for 225 research projects. The projects spanned the disciplines and included both independent research and work done in collaboration with other undergraduates as well as graduate student and faculty mentors.

The Office of Undergraduate Research is pleased to sponsor the 4<sup>th</sup> Annual Fall Frontiers Poster Exhibition. With tremendous growth in the number of undergraduate researchers and increased funding available to students, this annual Fall poster exhibition provides another opportunity for UConn's top student researchers to share their exciting work.

# **4<sup>th</sup> Annual Fall Frontiers Poster Exhibition**

## **Poster Exhibition**

Wednesday, October 26, 2016  
5:00 p.m. – 7:00 p.m.

## **Introduction and Welcome**

**Caroline McGuire**, Director, Office of  
Undergraduate Research

## **Keynote Speaker**

**Christian Brückner**, Professor and Department  
Head, Chemistry

## **Closing Remarks**

**Jennifer Lease Butts**, Assistant Vice Provost,  
Enrichment Programs, and Director, Honors  
Program

## **Student Posters and Presenters**

This listing of projects includes the undergraduate student authors and their faculty mentors. Many projects also include the contributions and mentorship of dedicated graduate students and post-doctoral scholars. In some cases students work with faculty outside their school or college; in most cases, research is grouped according to the student's major.

### **1. Documenting the Burner Subculture: Photographs of the Hawaii Fire Artists**

Michael Amato, Art - Photography

Advisor: Janet Pritchard, Associate Professor, Art and Art History

### **2. Fear: The Culture**

Raeanne Nuzzo, Art - Graphic Design

Advisor: Mary Banas, Visiting Assistant Professor, Art and Art History

### **3. An Exploration of Kitschy Architecture and Retro Americana**

Alana Valdez, Art - Illustration

Advisor: Kathryn Myers, Professor, Art and Art History

### **4. Museums, Libraries, and Civic Discourse in Connecticut**

Samantha Mairson, Digital Media and Design

Advisor: Clarissa Ceglio, Assistant Professor, Digital Media and Design

### **5. Beat Your Gums: A History of Collected Stories and Reflections of New England Veterans**

Tara Lokke, History

Advisor: Fiona Vernal, Associate Professor, History

### **6. The Path to Legalized Abortion in France: A History of Reproductive Rights in French Political, Cultural and Social Life from 1967-1975**

Elena Boush ee, History

Advisor: Sylvia Schafer, Associate Professor, History

**7. The Economics of Certification and Quality Disclosure**

Joseph Roessler, Economics and Mathematics

Advisor: Talia Bar, Assistant Professor, Economics

**8. Political Parties and Women's Rights in Turkey**

Rubayet Lasker, Political Science and Human Rights

Advisor: Zehra Arat, Professor, Political Science

**9. "Reel" Police, Prosecutors, and Portrayals of the Use of Force: Assessing the Lessons of Law and Order: SVU within the Current Legal and Political Climate**

Amy Saji, Political Science

Advisor: Kimberly Bergendahl, Assistant Professor in Residence, Political Science

**10. An Ethnographic Analysis of Workers at The Interval House in Hartford Connecticut: A Survey of Domestic Violence Staff and their Psyche**

Neha Pawar, Physiology and Neurobiology

Advisor: Garry Lapidus, Associate Professor of Pediatrics and Public Health, UConn School of Medicine

**11. Navigating and Understanding Healthcare: The Importance of Health Insurance Literacy and Community Health Workers**

Grace Lee, Molecular and Cell Biology

Advisor: Reinaldo Rojas, Visiting Assistant Professor, Urban and Community Studies

**12. Evaluating Rural Knowledge, Constraints and Perceptions on Cervical Cancer Screening: A Study in Rural South India**

Akshayaa Chittibabu, Physiology and Neurobiology

Advisor: Bandana Purkayastha, Professor, Sociology

**13. The NICU Parent Risk Evaluation and Engagement Model and Instrument for Neonates**

Nefeli Makris, Nursing

Advisor: Jacqueline McGrath, Professor and Associate Dean, Nursing

**14. Diversity in the World of Education**

Isabella Horan, Pre-Teaching - Elementary Education and English

Advisor: Susan Payne, Associate Clinical Professor, Curriculum and Instruction

Advisor: Mia Hines, Academic Advisor, Neag School of Education

Advisor: Dominique Battle-Lawson, Academic Advisor, Neag School of Education

**15. Importance of Social Network Ties in Ad-Hoc Team Composition: Implications for Individual Team Member Performance**

Emily Roller, IMJR: Consumer Judgment and Decision Making

Advisor: Dev Dalal, Assistant Professor, Psychology, University at Albany, State University of New York

**16. Competitive Modeling: Predicting Counterproductive Work Behavior with the Theory of Planned Behavior and the Prototype Willingness Model**

Ryan Thibodeau, Psychological Sciences

Advisor: Dev Dalal, Assistant Professor, Psychology, University at Albany, State University of New York

**17. The Relation Between Personal Bullying Experience with Evaluations of Various Response Strategies to Exclusion Bullying Scenarios**

Samantha Lawrence, Psychological Sciences and Human Development and Family Studies

Advisor: Alaina Brenick, Assistant Professor, Human Development and Family Studies

**18. Joint Action and Attention in Preschoolers Explored through Gameplay**

Taylor Chesnet, Speech, Language, and Hearing Sciences

Brittany Chiu, Psychological Sciences and Sociology

Alexandra Piel, Physiology and Neurobiology

Advisor: Adam Sheya, Assistant Professor, Psychological Sciences

**19. An Analysis of Gesture Comprehension in Adults with Autism Spectrum Disorder and Typical Development**

Caitlin Emmett, Speech, Language, and Hearing Sciences

Advisor: Inge-Marie Eigsti, Associate Professor, Psychological Sciences

**20. Effect of Intensive Reading Treatment Compared to Intensive Language Action Therapy for Persons with Chronic Mild Aphasia**

Samantha Coulombe, Speech, Language, and Hearing Sciences

Advisor: Jennifer Mozeiko, Associate Professor, Speech, Language, and Hearing Sciences

**21. Effects of Attention on Lexically-Informed Perceptual Learning for Speech**

Jacqueline Ose, Secondary Biology Education

Advisor: Rachel Theodore, Assistant Professor, Speech, Language, and Hearing Sciences

**22. Polysyllabic Word Spelling**

Marissa Gadacy, Psychological Sciences and Human Development and Family Studies

Advisor: Devin Kearns, Assistant Professor, Educational Psychology

**23. Phonetic Integration: Does Sound-Shape Correspondence Affect Phonetic Identification?**

Jessica Joseph, Psychological Sciences

Advisor: Eiling Yee, Assistant Professor, Psychological Sciences

Advisor: Emily Myers, Associate Professor, Speech, Language, and Hearing Sciences



**24. Attractors to Faculty Positions within Higher Education Institutions for Women in Athletic Training**

Leah Sampson, Athletic Training

Advisor: Stephanie Mazerolle, Assistant Professor, Kinesiology

**25. Social Influences of Top High School Baseball Prospects' College-Professional Decision**

Max Klein, Sport Management

Advisor: Joseph Cooper, Assistant Professor, Educational Leadership

**26. Bilingual Spanish-English Marketing as a Catalyst for Cultural Awareness: The Effect on Parents in the Toy Market**

Margo Bailey, Marketing

Advisor: Robin Coulter, Professor and Department Head, Marketing

**27. SquareOne: Change the World with Each Other**

Mahir Rana, Computer Science and Engineering

Alexander Ajayi, Finance

Advisor: Steven Williams, Visiting Instructor, Accounting

**28. Pairing T Cell Receptor  $\alpha$  and  $\beta$  Sequences Using Combinatorial Pooling and Min-Cost Flows**

Tyler Daddio, Computer Science and Engineering and Mathematics

Advisor: Ion Mandoiu, Associate Professor, Computer Science and Engineering

**29. Modeling Tsunami Run-Up and Draw-Down on a Beach**

Dylan Smith, Mathematics

Advisor: Sergei Fomin, Professor, Mathematics, California State University, Chico

**30. Investigation of Electrostatic Interactions in Determining Conformational Behavior of Carbocyclic and Heterocyclic Compounds**

Zachary Stempel, Chemistry

Advisor: William Bailey, Professor, Chemistry

**31. Optimization of the Microwave Synthesis and Characterization of Sodium Tungsten Bronze Materials**

Jessica Murdzek, Chemistry

Advisor: Steven Suib, Distinguished Professor, Chemistry and Director, Materials Science Institute

**32. On the Cutting Edge of Oxoammonium Salt Oxidations**

Vincent Pistrutto, Chemistry and Music

Advisor: Nicholas Leadbeater, Associate Professor, Chemistry

**33. Molecular Dynamics Simulations of Human Cardiac Calsequestrin and the Mutation E39K**

Gabriella Reggiano, Chemistry

Advisor: Michael Grabe, Associate Professor in Residence, Department of Pharmaceutical Chemistry, University of California, San Francisco

**34. Titanium Catecholates as Chromophores**

Carolyn Mastriano, Chemistry

Advisor: Christian Brückner, Professor and Department Head, Chemistry

**35. Development of Biodegradable Magnesium-PLGA Composites for Bone Tissue Engineering**

Thomas Xu, Chemistry

Advisor: Syam Nukavarapu, Assistant Professor, Department of Orthopaedic Surgery, Institute for Regenerative Engineering, UConn Health

**36. Gradient Osteochondral Matrix: Growth Factor Release and In Vitro Characteristics**

Marisa Boch, Chemical Engineering and Molecular and Cell Biology

Advisor: Syam Nukavarapu, Assistant Professor, Orthopaedic Surgery, Institute for Regenerative Engineering, UConn Health

**37. Identifying Potential Growth Factors to Trigger Limb Regeneration Responses in Mammals**

Ayesha Ejaz, Biological Sciences

Advisor: Caroline Dealy, Associate Professor, Department of Reconstructive Sciences, Department of Orthopaedic Surgery, Center for Regenerative Medicine and Skeletal Development, UConn Health

**38. Control Methods for Two Robots**

Gregory Bicknell, Mechanical Engineering

Advisor: Xu Chen, Assistant Professor, Mechanical Engineering

**39. Smartphone-Compatible Magnetic Focusing for Detection of Circulating Tumor Cells**

Ashwini Joshi, Biomedical Engineering

Advisor: Savas Tasoglu, Assistant Professor, Mechanical Engineering and Biomedical Engineering

**40. Engineered Bispecific Antibodies to Inhibit HIV-1 Infection**

James Chapman, Chemical Engineering

Advisor: Richard Sutton, Associate Professor of Medicine, Department of Internal Medicine, Yale University School of Medicine  
Advisor: Yi-Jun Zhang, Associate Research Scientist in Medicine, Department of Internal Medicine, Yale University School of Medicine

**41. Discovery of lncRNA-Encoded Peptidome in Mouse Kidney Inner Medulla**

Cameron Flower, Biomedical Engineering

Advisor: Mark Knepper, Senior Investigator, National Heart, Lung, and Blood Institute, National Institutes of Health

**42. Curcumin Loaded Injectable Hydrogel: Formulation and Antioxidant Activity Evaluation and Review**

Sana Suhail, Biomedical Engineering

Advisor: Shalini Gohil, Post-doctoral Fellow, Institute for Regenerative Engineering, UConn Health

### **43. Unexpected Role of Interferon- $\gamma$ In Regulating Neuronal Connectivity and Social Behaviour**

Sayedna Najamussahar (Sahar) Peerzade, Biomedical Engineering  
Advisor: Vladimir Litvak, Assistant Professor, Department of Microbiology and Physiological Systems, University of Massachusetts Medical School

### **44. Effect of Milk Sphingomyelin on LPS-mediated Inflammation in RAW264.7 Macrophages**

Caitlin Porter, Nutritional Sciences  
Advisor: Christopher Blesso, Assistant Professor, Nutritional Sciences

### **45. Understanding the Role of SR-B1 in Lipid Metabolism and Inflammation**

Christina Jiang, Nutritional Sciences and Molecular and Cell Biology  
Advisor: Christopher Blesso, Assistant Professor, Nutritional Sciences

### **46. Dietary Walnuts Linked to Decrease in Intestinal Inflammation in Mouse Model of Colitis**

Alyssa Matz, Molecular and Cell Biology  
Advisor: Masako Nakanishi, Research Associate, Center for Molecular Medicine, UConn Health  
Advisor: Daniel Rosenberg, Professor of Medicine, Center for Molecular Medicine, UConn Health

### **47. Assembly and Lipid Binding of ERMES Subunit Mdm12**

Adrian Coscia, Molecular and Cell Biology  
Advisor: Nathan Alder, Associate Professor, Molecular and Cell Biology  
Advisor: Victoria Robinson, Associate Professor, Molecular and Cell Biology

**48. A Better Future in Mind: CB2SH3(-) Overexpression Recruits Gephyrin to the GABAergic Postsynapse**

John Bear, Jr., Physiology and Neurobiology and Molecular and Cell Biology

Advisor: Angel de Blas, Professor, Physiology and Neurobiology

**49. B-1 Cell Generation in Transgenic Mouse Model of Sickle Cell Disease**

Christina Cotte, Molecular and Cell Biology and Pathobiology

Advisor: Steven Szczepanek, Assistant Professor, Pathobiology and Veterinary Science

**50. F.I.S.H. Model (Fluorescent Imaging Screen for Hepatotoxicity): Validation of IVIS Imaging for Drug-Induced Liver Injury in Zebrafish**

Matthew Lin, Biological Sciences

Advisor: Li Wang, Professor, Physiology and Neurobiology

**51. The Effect of Vibration on Hand Therapy Outcomes in Chronic Stroke Patients**

Paris Pruitt, Molecular and Cell Biology

Advisor: Na Jin Seo, Associate Professor, College of Health Professions, Occupational Therapy, Medical University of South Carolina

**52. The Effects of COMT Gene Variations on Effort-Related Motivational Behavior in a Transgenic Mouse Model**

Suzanne Cayer, Physiology and Neurobiology

Advisor: John Salamone, Distinguished Professor, Psychological Sciences

**53. The Role of Adenosine in Motivational Symptoms of Depression: Studies on the Effects of Preladenant in Animal Models**

Sarah Ferrigno, Psychological Sciences and Molecular and Cell Biology

Advisor: John Salamone, Distinguished Professor, Psychological Sciences

**54. A Putative Role of Light Detection by Hemocytes in the Hawaiian Bobtail Squid-*Vibrio fischeri* Symbiosis**

Matthew Cucurello, Molecular and Cell Biology

Advisor: Spencer Nyholm, Associate Professor, Molecular and Cell Biology

**55. Influence of Caspase 3 Inhibition and 3-Dimensional Hydrogel Culture on Transplanted Satellite Cell Fate**

Dinkar Ahuja, Molecular and Cell Biology

Advisor: David Goldhamer, Professor, Molecular and Cell Biology

**56. Development of Proximity Ligation Assay for Investigation of Cannabinoid Receptor 1**

Caitlin Jagla, Molecular and Cell Biology

Advisor: Debra Kendall, Distinguished Professor, Pharmaceutical Sciences

**57. High Efficiency Production of 1,3-Propanediol by Recombinant *E. coli***

Summit Singhaviranon, Molecular and Cell Biology and Chemical Engineering

Advisor: Jonathan Klassen, Assistant Professor, Molecular and Cell Biology

Advisor: Richard Parnas, Professor, Chemical and Biomolecular Engineering

**58. Immunogenicity Assessment of Human Embryonic Stem Cell Derived Mesenchymal Stem Cells**

Tessa Kell, Pathobiology

Advisor: Shalyn Campellone, Senior Scientist, ImStem Biotechnology

**59. Screening Maize Expressed Fiber Degrading Enzymes for Improved Animal Nutrition**

Rebecca Pranger, Molecular and Cell Biology

Advisor: Christopher "Kit" Bonin, Senior Biochemist & Plant Analysis Lead, Agrivida, Inc.

**60. The Phylogenetic Structure in Four Chloroplast Loci Confirms the Polyphyly of *Physcomitrium pyriforme* (Bryophyta) in North America**

Satpal Jutla, Biological Sciences

Advisor: Bernard Goffinet, Professor, Ecology and Evolutionary Biology

**61. Investigating Phenotypic Results of RNA Interference on Cap-n-Collar and Wnt6 genes in *Tribolium castaneum***

Limmond Ayisi, Jr., Biological Sciences

Advisor: Elizabeth Jockusch, Professor, Ecology and Evolutionary Biology

**62. Temporal Differences in Avian Carrying Rate of Adelgidae Crawlers**

Nicholas Russo, Ecology and Evolutionary Biology

Advisor: Morgan Tingley, Assistant Professor, Ecology and Evolutionary Biology

Advisor: Chris Elphick, Associate Professor, Ecology and Evolutionary Biology

Advisor: Nathan Havill, Research Entomologist, Northern Research Station, United States Department of Agriculture, Forest Service

**63. Investigating the Influence of Red Tide Algae on Prey Selection of Marine Copepod *Acartia tonsa***

Jessica Griffin, Environmental Science and Ecology and Evolutionary Biology

Advisor: Hans Dam, Professor, Marine Sciences

**64. How Does Plumage Color Vary in Red-Winged Blackbirds?**

Genevieve Nuttall, Ecology and Evolutionary Biology

Advisor: Morgan Tingley, Assistant Professor, Ecology and Evolutionary Biology

Advisor: Chris Elphick, Associate Professor, Ecology and Evolutionary Biology

## Alphabetical Listing of Presenters with Poster Numbers

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## Special Thanks

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Jennifer Lease Butts, *Assistant Vice Provost for Enrichment Programs and Director of the Honors Program*

Student Volunteers for the Fall Frontiers Poster Exhibition

## Office of Undergraduate Research

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