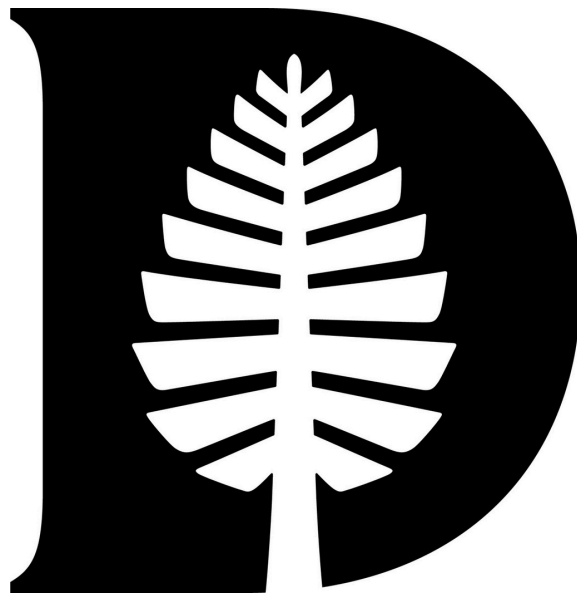


# **KAREN E. WETTERHAHN**

## **SCIENCE SYMPOSIUM**



**A Celebration of Undergraduate  
Research in the Sciences**

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**Tuesday, May 27, 2025 Hanover Inn**



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# SCHEDULE

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**10:00-11:30 AM**  
**12:00-2:30 PM**

**Christopher Reed Science Competition**  
McFate & Washington conference rooms

**4:00-5:00 PM**

**Keynote Address**  
Grand Ballroom

**5:30-7:30 PM**

**Student Poster Session**

- Grand Ballroom
- Hayward Lounge
- Drake Room
- Ford-Sayre/Brewster Room
- Lower Lobby

**7:30-7:45 PM**

**Poster Removal**

Students return clips, name tags, and poster number to the box at the registration table. Posters left behind will be discarded.

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# HISTORY OF THE SYMPOSIUM

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The symposium is named in memory of the late Karen Wetterhahn (1948-1997), Professor of Chemistry, Associate Dean for the Sciences, and co-founder of the Women in Science Project (WISP). Karen's love of science and desire to see more undergraduates have early research experiences led to the idea of a symposium. In the poster session, students present work in a broad range of disciplines in the sciences and engineering. The symposium offers them the opportunity to present their research to peers, faculty members, graduate students, postdoctoral scholars, and other guests, to network and converse with working scientists, and to celebrate their scholarly achievements.



Karen E. Wetterhahn

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# KEYNOTE ADDRESS

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Dartmouth Trustee Dr. Odette Harris graduated from the College in 1991 and went on to receive her MD from Stanford University School of Medicine, where she also completed her residency. She is currently a professor of neurosurgery at Stanford and holds the Paralyzed Veterans of America Endowed Professorship of Spinal Cord Injury Medicine. This chair distinguishes her as the first African American woman in neurosurgery and the first woman in neurosurgery at Stanford to receive this honor.

Dr. Harris's work involves managing the care of patients suffering from traumatic brain injury by implementing treatment algorithms aimed to enhance their quality of life. She is the recipient of numerous academic, research and humanitarian awards, including recognition from Congress, the American Association of Neurological Surgeons, and the government of Jamaica.



Dr. Odette Harris '91

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# CHRISTOPHER G. REED SCIENCE COMPETITION

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Named in memory of the late Professor of Biology and Sigma Xi chapter officer Christopher Reed, the competition is open to all senior honors thesis students majoring in science, math and engineering who present a poster at the Wetterhahn Symposium. Presenters are evaluated on the quality of their research and the effectiveness of their presentation by a panel of Sigma Xi members.

Presented by: Dean Wilcox, Professor and Chair of Chemistry

## **About Sigma Xi:**

Sigma Xi is a scientific honor society, originally established at Cornell University in 1886. Its mission is to honor scientific accomplishments, to encourage and enhance the worldwide appreciation and support of original investigation in science and technology, and to foster a creative and dynamic interaction among science, technology, and society. A fundamental responsibility of the Society is honoring research scientists or those with aptitude for research.

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# KEY TO STUDENT POSTERS

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**Note:** The location of each poster will be listed at the sign-in desk outside of the Hayward Lounge and on signage throughout the Hanover Inn.

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## Department Abbreviations

ANTH	Anthropology
BIOL	Biological Sciences
CHEM	Chemistry
COSC	Computer Science
COGS	Cognitive Science
EARS	Earth Sciences
ENGS	Thayer School of Engineering
ENVS	Environmental Studies
GEOG	Geography
LING	Linguistics
MATH	Mathematics
MED	Geisel School of Medicine
PHYS	Physics & Astronomy
PBS	Psychological & Brain Sciences
QSS	Quantitative Social Science

# Student Presenters, Alphabetical

Asterisk (\*) denotes students co-presenting a poster

## **Erik Axel Abrahamson `27**

Advisor: George O'Toole & Sarvesh Surve (MED)  
Bacteroides as a potential CF probiotic

**URAD**

Poster #41

## **Emmaculate W Adiba `28\***

Advisor: Emily Monroe (ENGs) Augmented reality to visualize higher density housing zones in Hanover

**FYREE**

Poster #100

## **Samuel Adjel `28\***

Advisor: Irene Georgakoudi (ENGs) Precision without invasion: The path to biopsy-free cervical diagnostics

**FYREE**

Poster #130

## **Syed Masrur Ahmed `28**

Advisor: Ethan Levien (MATH) Convergence of transformers hard coded for predicting SDEs

**URAD**

Poster #32

## **Loza Amanuel `28**

Advisor: Chandrasekhar Ramanathan (PHYS)  
Exploring spin dynamics with magnetic resonance

**WISP intern**

Poster #15

## **Alexandra Elizabeth Anderson `27\***

Advisor: Jonathan Phillips (COSC) & Alina Dracheva (COGS)  
Predicting ad hoc categories with word embeddings

**URAD**

Poster #9

## **Angelica Angelica `28**

Advisor: Jonathan Winter (GEOG) Tracing a flood's footprint: Mapping stream channel changes from recent flooding events in Vermont

**WISP intern**

Poster #142

## **Nancy R Apollo `28\***

Advisor: Chandrasekhar Ramanathan (PHYS) Portable diamond nitrogen vacancy center magnetometer

**WISP intern**

Poster #75

## **Sachi Badola `26**

Advisor: Arti Gaur (MED) Characterizing proteomic landscape of glioblastoma multiforme tumors using Digital Spatial Profiling

**Leave term research**

Poster #59

## **Maryanne N Barasa `25**

Advisor: Robert Hill & Alicia Pietramale (BIOL) CX3CR1 modulates microglial clearance of single dying neurons

**EE Just Program**

Poster #36

**Greta Batchelor `28**

Advisor: Daniel Olson & Angel Pech (ENGS) Automating protocols: Using robots in protein engineering

**WISP intern**

Poster #106

**Marissa Benz `26**

Advisor: Mark Thornton & Landry Bulls (PSYC)  
Interpersonal and behavioral indices of neuroticism

**URAD**

Poster #39

**Evan D Bian `28\***

Advisor: Emily Behrman & Emily Carson (BIOL) The genetic basis of male Drosophila attraction to female 7,11-HD pheromone

**Other**

Poster #56

**J'Voughnn A Blake `26**

Advisor: Sladjana Skopelja-Gardner & Zachary Peters (MED) Immune checkpoint VISTA regulates type I interferon in keratinocytes

**POWERED**

Poster #42

**Finnley Paul Blankenship `28**

Advisor: Daniel Olson & Shu Huang (ENGS) Comparing the specific activity and substrate affinity of alcohol dehydrogenases AdhA and AdhB

**FYREE**

Poster #50

**Alex Breslav `25**

Advisor: Xiaofeng Wang (MED) Identifying the differential activities of SWI/SNF ATPases BRG1 and BRM

**Senior honors thesis**

Poster #148

**Penelope Brody `28**

Advisor: Adithya Pediredla & Quinton Qu (COSC) Optimizing event-to-video reconstruction network for high-speed videography

**WISP intern**

Poster #151

**Kya Bruckner `28\***

Advisor: Margaret Ackerman (ENGS) & Lesle Jimenez (MED)  
FC engineered antibodies against HSV-1

**WISP intern**

Poster #33

**Juliana O Carpe `28**

Advisor: Wei-lih Lee (BIOL) Generating mutations in budding yeast cells using crispr-cas9 genome engineering technique

**WISP intern**

Poster #2

**Ava E Carr `27**

Advisor: Magdalena Bezanilla (BIOL) Characterizing endosomal recycling pathways in physcomitrella patens

**URAD**

Poster #53

**Yunhee Chae `28\***

Advisor: Vikrant Vaze & Lilly Yang (ENGS) Algorithms for renewable energy transition in fragile states

**Other**

Poster #112

**Torsha Chakraverty `27**

Advisor: Vasanta Lakshmi Kommineni (COSC)  
Practice-based coding tutorial using generative AI

**Lovelace Scholar**

Poster #155

**Emily Grace Chang `28\***

Advisor: Emily Behrman & Emily Carson (BIOL) Genetics of courtship behavior of *Drosophila melanogaster*

**WISP intern**

Poster #48

**Eleanor F Chase `25**

Advisor: Katherine Mirica (CHEM) Hydrothermal deposition of  $\text{Ni}_3(\text{HHTP})_2$  MOF on conductive threads for electrochemical sensing

**Senior honors thesis**

Poster #103

**Diane Chen `26**

Advisor: Benjamin Ross & Casey Latario (MED) Interbacterial interactions in the gut: Characterizing the T6SS complex in *Bacteroides*

**URAD**

Poster #72

**Sam Chin `28**

Advisor: Katherine Hixon & Adelaide Cagle (ENGS) Strength testing and 3D printing for soft tissue support in osseointegration devices

**Other**

Poster #35

**Ash Chinta `24**

Advisor: Emily Finn & Katie O'Neill (PSYC) Understanding ADHD through a naturalistic semantic foraging task

**Senior honors thesis**

Poster #146

**Simrin Chowdhury `28**

Advisor: Peter Mucha (MATH) Multilevel vector autoregression and compartmental models for epidemic dynamics analysis

**WISP intern**

Poster #99

**Catherine Chu `26\***

Advisor: Chandrasekhar Ramanathan & Peter Chin (PHYS) Enhancing reinforcement learning techniques for RF pulse control of nuclear spin systems

**URAD**

Poster #147

**Miranda Clack `25**

Advisor: Arjen Stolk (PSYC) The role of the orbitofrontal cortex in social cognition: An analysis of betweenness centrality and functional heterogeneity

**Senior honors thesis**

Poster #26

**Anna Costello `28**

Advisor: Magdalena Bezanilla & Shu-Zon Wu (BIOL) Expansion:  
How plant cell walls expand in *Physcomitrella patens*

**WISP intern**

Poster #119

**Katherine S Cox `25**

Advisor: Katherine Hixon & Levi Olevsky (ENGS) Tailoring of cryogel scaffold pore  
distribution for improved bone vascularization

**Senior honors thesis**

Poster #143

**Noah C. da Silva `25**

Advisor: Caitlin Hicks-Pries (BIOL) & Joshua Landis (EARS) The quiet collapse:  
Impacts of soil biogeochemistry on Bermudian micro-snails'

**Senior honors thesis**

Poster #30

**Jason A Davis `25**

Advisor: Viola Stormer & Kevin Ortego (PSYC) Didn't I just hear that sound? How  
previous experience influences auditory attention

**Senior honors thesis**

Poster #49

**Kalyn Yates Dawes `25**

Advisor: Carl Renshaw (EARS) & Sarah Kelly (GEOG) Building Hartford resilience: Prioritizing  
culvert maintenance to ensure first responder access during and prior to flooding

**Senior honors thesis**

Poster #128

**Emmanuel Prince Dey `28**

Advisor: Ethan Murphy (ENGS) Accelerating EEG electrode localization using 3D iPhone  
scanning and point-cloud electrode selection

**FYREE**

Poster #16

**Prishita Dharampal `28\***

Advisor: Lorie Loeb (COSC) Big  
Green Planner

**WISP intern**

Poster #153

**James Theodore Dodge `25**

Advisor: Alexander Boys (ENGS) Novel method for pure  
polymer vagus nerve stimulators

**Senior honors thesis**

Poster #140

**Michael J Dong `26**

Advisor: Steven Leach & Somer Matar (MED) Immunofluorescent characterization  
of novel zebrafish pancreatic cancer models

**URAD**

Poster #71

**Shahidullah Dost `26**

Advisor: Alireza Soltani (PSYC) Decoding decisions: Linking behavior,  
brain circuits, and belief updating

**Other**

Poster #122

**Adrianna Drindak `26**

Advisor: Meredith Kelly (EARS) Deglaciation and environmental change in northern Vermont

**Leave term research**

Poster #102

**Lucky L. Drucker `26**

Advisor: Bryan Luikart (MED) The role of FMRP in driving neuronal hypertrophy underlying fragile X syndrome

**Senior honors thesis**

Poster #58

**Kaitlyn Elias `28**

Advisor: Maria Pellegrini (CHEM)  
Hooked into crystallized NEMO

**WISP intern**

Poster #146

**Sevdora S Eshnazarova `25**

Advisor: Esteban Orellana & Qi Yao (MED)  
Exploring the role of TRMT1 in oncogenesis

**Leave term research**

Poster #29

**Michael Browning Farnell `26**

Advisor: Burcin Mutlu-Pakdil & Laura Hunter (PHYS) Dwarf galaxy confirmation: Confirming dwarf galaxies in the Local Volume

**Presidential Scholar**

Poster #74

**Oumie Fatty-Hydara `27**

Advisor: Charles Thomas (MED) Future world changer, and beacon of light that inspires others and touches people's hearts

**Leave term research**

Poster #145

**Josefina C Fernandez Del Rio `28**

Advisor: Katherine Hixon & Adelaide Cagle (ENGS) Variation of cryogel polymer ratios for the optimization of bone applications.

**FYREE**

Poster #126

**Caroline M Fore `28**

Advisor: Alireza Soltani & Michael Chong Wang (PSYC) Human sequential decision making in multidimensional environments

**WISP intern**

Poster #141

**Julia Fortier `26**

Advisor: Jon Kull (CHEM) & Keren Attiku (MED) Understanding the virulence of E. coli transcription factor, AggR, using regulation by fatty acids

**URAD**

Poster #107

**Caleb Thomas Frank `28\***

Advisor: Emily Monroe (ENGS) Ground source heat pump systems for decarbonized residential heating at a neighborhood scale

**FYREE**

Poster #10

**Gavin Michael Fry `25**

Advisor: Erich Osterberg (EARS) Meteorological and social dynamics of severe storms in the Mid-South United States

**Senior honors thesis**

Poster #98

**Elisabeth A Galton `28**

Advisor: Dionna Kasper & Carolyn Winston (BIOL) Investigating the role microRNA-223 in zebrafish lymphatic development

**WISP intern**

Poster #38

**Shreya Gandhi `26**

Advisor: Kristina Lynch & Magdalena Moses (PHYS) Dynamic auroral displays: Learnings from LAMP sounding rocket mission

**Presidential Scholar**

Poster #24

**Yanyel Garcia `25**

Advisor: Bing He (BIOL) Optogenetic investigation of the role of the phospholipid PI4P in *Drosophila melanogaster* embryogene

**Senior honors thesis**

Poster #9

**Jackson C George `26\***

Advisor: Linh Huynh (MATH) Data-driven mathematical spin glasses for stochasticity in large language model social networks

**URAD**

Poster #51

**Lily M Giurleo `28**

Advisor: Afton Limberg & Douglas VanCitters (ENGS) Revitalizing tendons: Exploring the impact of hyperbaric oxygen treatment

**WISP intern**

Poster #76

**Rachel Glantzberg `28\***

Advisor: Irene Georgakoudi (ENGS) Precision without invasion: The path to biopsy-free cervical diagnostics

**WISP intern**

Poster #130

**Leah Goldberg `28**

Advisor: Ian Baker & Aubrey Tang (ENGS) Characterization of an additively manufactured soft magnet medium entropy alloy: Fe<sub>40</sub>Co<sub>30</sub>Mn<sub>15</sub>Al<sub>15</sub>

**WISP intern**

Poster #149

**Alec Goldstein `28**

Advisor: Charles Sullivan & Allen Nguyen (ENGS) Benchmarking low-power line-frequency transformers

**FYREE**

Poster #31

**Jackson H Gosler `25**

Advisor: Marisa Palucis (EARS) Predicting total organic carbon from x-ray fluorescence in Atacama salars using machine learning

**Senior honors thesis**

Poster #81

**Taanvi Gowdar `28**

Advisor: Viola Stoermer & Kevin Ortego (PSYC) Seeing and learning: EEG insights into visual search strategies and learning mechanisms

**WISP intern**

Poster #8

**Eden Gray `28\***

Advisor: Emily Monroe (ENGS) Ground source heat pump systems for decarbonized residential heating at a neighborhood scale

**FYREE**

Poster #10

**Dawson Haddox `25**

Advisor: Thalia Wheatley & Emma Templeton (PSYC) Examining the causal influence of insider language on social connection

**Senior honors thesis**

Poster #7

**Narissa Jelessia Heslop `28\***

Advisor: George Schaller & Swadhin Swain (BIOL) Screening for mutations in auxin genes using CRISPR-Cas9 in Arabidopsis

**WISP intern**

Poster #105

**Emma Hochberg `25**

Advisor: Michael Hoppa (BIOL) Plasticity of spontaneous neurotransmission

**Senior honors thesis**

Poster #12

**Thomas N Hohmann `26**

Advisor: Kyle Smith & Stuti Agrawal (PSYC) Understanding social patterns: The role of the NA-VP pathway in Pavlovian cue-reward learning

**Leave term research**

Poster #138

**Bo W Huang `27**

Advisor: Devin Balkcom & Yitao Jiang (COSC) Soft-body robotics: Design and prototyping of morphing wing aircraft

**URAD**

Poster #60

**Brin S. Jaffe `25**

Advisor: Vivien Taylor (EARS) Methylmercury dynamics across a river to lake transect in the Mascoma Lake Watershed, New Hampshire

**Senior honors thesis**

Poster #57

**Lakshmi Jain `26**

Advisor: Arti Gaur & Carmen Del Genio (MED) MRI protocol for volumetric analysis of patient derived intracranial glioblastoma xenografts

**URAD**

Poster #136

**Tobias A Jehn `28\***

Advisor: Emily Behrman & Emily Carson (BIOL) The genetic basis of male Drosophila attraction to female 7,11-HD pheromone

**Other**

Poster #56

**John Spencer Jerro `26**

Advisor: Roger Hanlon & Steve Senft (Other)  
Pigment-associated iridescence in *Sepia officinalis*

**EE Just Program**

Poster #14

**Yiran Jiang `26\***

Advisor: Jonathan Phillips (COSC) & Alina Dracheva (PSYC)  
Predicting ad hoc categories with word embeddings

**URAD**

Poster #9

**Amirahimaan Kalonji `28**

Advisor: Kiara Sanchez & Shannon Li (PSYC) Cross-race mentorship conversations: Studying how white mentors share advice

**WISP intern**

Poster #4

**Daniel D Kang `25**

Advisor: Katherine Hixon (ENGS) Targeted drug delivery via bilayered nanoparticle-cryogel composites

**Senior honors thesis**

Poster #91

**Ana G Kangsumrith `28**

Advisor: Mahima Sneha (CHEM) Using spectrometry to analyze maple sap and syrup

**WISP intern**

Poster #108

**Lauren Kayari `25**

Advisor: Meredith Kelly & Chris Guiterman (EARS) Identifying wildfire regime shifts in North America using change point analysis

**Senior honors thesis**

Poster #44

**Tierra R Kazenoff `28\***

Advisor: Margaret Ackerman & Lesle Jimenez (BIOL)  
FC engineered antibodies against HSV-1

**WISP intern**

Poster #33

**Taka Khoo `25**

Advisor: Peter Chin (ENGS) & Michael Casey (COSC) Automated music mastering & denoising: Tokenizer u-net neural networks for single channel audio

**Senior honors thesis**

Poster #45

**Lina Kim `28\***

Advisor: Brenhin Keller & Jannitta Yao (EARS) Zircons & The Needle Mountains: The key to unlocking the geological history of the Southwestern U.S.

**WISP intern**

Poster #67

**Ava Kirr `27\***

Advisor: Lauren Walker (MED) Perlecan regulation of neuromuscular junctions in zebrafish

**URAD**

Poster #73

**Kate Kogut `28**

Advisor: Mahima Sneha (CHEM) Unravelling photocatalyzed chemical reaction mechanisms with laser spectroscopies

**WISP intern**

Poster #55

**Claire Kovac `27**

Advisor: Marisa Palucis & Emma Rogers (EARS) Martian clast morphometry: a quantitative analysis along the first 100 sols of the Curiosity rover's traverse

**WISP intern**

Poster #89

**Kaveri J Krishnamoorthy `28\***

Advisor: Alireza Soltani & Aryan Yazdanpanah (PSYC)  
Cognitive heuristics and eco-sustainable behavior

**WISP intern**

Poster #85

**Emily Lam `28\***

Advisor: Peter Chin (ENGS) Apply manifold learning technique to design recurrent architecture for low dimension classification

**WISP intern**

Poster #21

**Kelly Lao `28**

Advisor: Adithya Pediredla & Quinton Qu (COSC)  
High-speed videography with event cameras

**WISP intern**

Poster #150

**Ella Laurent `25**

Advisor: Mary Lou Guerinot & Suna Kim (BIOL) Light signaling in the iron uptake pathway in Arabidopsis thaliana

**Senior honors thesis**

Poster #114

**Josh S Lee `26**

Advisor: Alexander Rimberg (PHYS) Applying a frequency stabilization method to optimize quantum detection

**Leave term research**

Poster #88

**Bomi Lee `28**

Advisor: Peter Chin (ENGS) Mapping real-life structures in hyperbolic space

**WISP intern**

Poster #96

**Sophie Lewis `25**

Advisor: Meredith Kelly & Justin Stroup (EARS) Early Holocene sea-level reconstruction and salt marsh response in Buzzards Bay

**Senior honors thesis**

Poster #1

**Cara Ashleigh Lewis `26**

Advisor: Alireza Soltani & Michael Wang (PSYC) Dynamic adjustments of valuation and decision making under uncertainty and variability

**EE Just Program**

Poster #27

**Ashton R. F. Lewis `25**

Advisor: Brenhin Keller (EARS) Age and petrogenesis of early Laramide porphyries on the eastern Beartooth Plateau

**Senior honors thesis**

Poster #135

**Selina Li `28\***

Advisor: Alireza Soltani & Aryan Yazdanpanah (PSYC)  
Cognitive heuristics and eco-sustainable behavior

**WISP intern**

Poster #85

**Guanming Liang `25**

Advisor: Robert Caldwell (PHYS) Cold dark matter based on an analogy with superconductivity

**Senior honors thesis**

Poster #3

**Brian Lihari `28**

Advisor: Peter Chin (COSC) Exploring path complex networks: Implications for drug development

**FYREE**

Poster #46

**Caleb Liu `24**

Advisor: Wenlin Zhang & Anderson Duraes (CHEM) Atomistic and coarse-grained simulations of polyethylene nanodroplets

**Senior honors thesis**

Poster #90

**Angelyn Liu `28\***

Advisor: Jeremy Manning (PSYC) Increasing the efficiency of learning through EEG

**WISP intern**

Poster #17

**Laura Y Liu `28\***

Advisor: Emily Monroe (ENGS) Augmented reality to visualize higher density housing zones in Hanover

**FYREE**

Poster #100

**Cordelia Loomis `28\***

Advisor: Donna Coch (PSYC) Are definitions of obsolete words influenced by word onsets and phonological awareness?

**WISP intern**

Poster #11

**Megan K. Lu `28**

Advisor: Miguel Gonzalez & Zhou Deng (CHEM) Host-guest interactions of metal-organic cage-capped gold nanoparticles

**WISP intern**

Poster #94

**Maggie Lutz `28\***

Advisor: Chandrasekhar Ramanathan (PHYS) Portable diamond nitrogen vacancy center magnetometer

**WISP intern**

Poster #75

**Charlotte B MacAvoy `28\***

Advisor: Emily Monroe (ENGs) Augmented reality to visualize higher density housing zones in Hanover

**FYREE**

Poster #100

**Bo MacNaughton `28**

Advisor: Peter Chin (ENGs) Target propagation for many-to-many recurrent neural networks

**FYREE**

Poster #20

**Hannah Madrigal `28\***

Advisor: Megan Romano (MED) Communicating risks of environmental toxicants to pregnant people, children, and adolescents

**WISP intern**

Poster #51

**Sara Magdalena Gomez `25**

Advisor: Mattias Fitzpatrick (ENGs)  
Characterizing losses of two-level systems

**Senior honors thesis**

Poster #68

**Audrey Marin `26**

Advisor: Maria Pellegrini (CHEM) Optimizing the dual luciferase assay to evaluate NF- $\kappa$ B pathway inhibition

**Presidential Scholar**

Poster #117

**Dayanara Martinez `28\***

Advisor: Kristina Lynch & Rowan Kowalsky (PHYS) PIP fabrication and keogram analysis: Preparation for the GNEISS mission to study sheetlike auroral arcs

**WISP intern**

Poster #70

**Sylvie Mauras `27**

Advisor: Michael Ragusa & Devika Andhare (CHEM) Initial stages of mitophagy: Effect of different lipid compositions on tethering via ATG-11 n- term

**WISP intern**

Poster #132

**Nathan L McAllister `25\***

Advisor: Emily Monroe (ENGs) Ground source heat pump systems for decarbonized residential heating at a neighborhood scale

**FYREE**

Poster #10

**Olivia McField \* `27**

Advisor: Emily Monroe (ENGs) Augmented reality to visualize higher density housing zones in Hanover

**FYREE**

Poster #100

**Sarah McRorie `26**

Advisor: Steven Leach & Britton Goodale (MED) Characterizing cells in the zebrafish bladder as a model for bladder cancer study

**URAD**

Poster #66

**Maytal Meskin `28**

Advisor: Viola Stoermer & Yong Hoon Chung (PSYC)  
What are the limits of visual working memory?

**WISP intern**

Poster #97

**Sonia E Meytin `26**

Advisor: Britt Goods (ENGS) & Soni Lacefield (MED) Comparing approaches to transmitted light image analysis in mouse oocyte masses

**Presidential Scholar**

Poster #34

**Matthew Monroe `27**

Advisor: Caitlin Hicks Pries (BIOL) How does dominant mycorrhizal type impact soil carbon storage?

**Presidential Scholar**

Poster #156

**Paul Moon `28\***

Advisor: Emily Behrman & Emily Carson (BIOL) Genetics of courtship behavior of *Drosophila melanogaster*

**URAD**

Poster #48

**Neva Michelle Nemanic `28**

Advisor: Katherine Hixon (ENGS) Nanoparticle encapsulation optimization for sustained release in clinical applications

**WISP intern**

Poster #134

**Journey Neulight `28\***

Advisor: Eric Schaller & Swadhin Swain (BIOL) Screening for mutations in auxin genes using CRISPR-Cas9 in *Arabidopsis*

**WISP intern**

Poster #105

**Mazvita Nhidza `28**

Advisor: Herbert Chang (QSS) Climate change: The conversations around the L.A. fires

**WISP intern**

Poster #144

**Mercy Niyi-Awolesi `28\***

Advisor: Megan Romano (MED) Communicating risks of environmental toxicants to pregnant people, children, and adolescents

**WISP intern**

Poster #51

**Kenna M O `28**

Advisor: Miguel Gonzalez & Abigail Procione (CHEM) Increasing selectivity in C-H functionalization via radical confinement in crystalline structures

**WISP intern**

Poster #115

**Astrid Olsen `27**

Advisor: Caitlin Hicks Pries & Joanna Ridgeway (BIOL) Mineral associated organic matter destabilization incubation

**Other**

Poster #52

**Tina Pan `28**

Advisor: Eugene Santos (ENGs) Detecting generated deceptive text from generative AI chatbots

**WISP intern**

Poster #69

**Sarah Parigela `27\***

Advisor: Jeremy Manning (PSYC)  
Ultra fast learning and training

**URAD**

Poster #121

**Alexis Park F Park `28**

Advisor: Arti Gaur & Carmen L. del Genio (MED) Proteomic characterization of immune signaling pathways in glioblastoma multiforme tumors

**WISP intern**

Poster #28

**Olivia Pendas `25**

Advisor: Wil Leavitt (EARS) Geochemical controls on archaeal lipids in hot springs from the Andean Cordillera

**Senior honors thesis**

Poster #139

**Jose R Perez IV `28**

Advisor: Peter Chin (ENGs) Teaching machines to reason: Modular machine learning guided by cognitive priors

**FYREE**

Poster #131

**Annie K Pflaum `28\***

Advisor: Kristina Lynch & Rowan Kalowsky (PHYS) PIP fabrication and keogram analysis: Preparation for the GNEISS mission to study sheetlike auroral arcs

**WISP intern**

Poster #70

**Richard S Pilny `28**

Advisor: Daniel Olson & Anthony Lanahan (ENGs) Improved techniques for analyzing genetic modifications of clostridium thermocellum

**FYREE**

Poster #43

**Katherine Plaza `25**

Advisor: Brenhin Keller (EARS) Intercaldera rocks of the San Luis Caldera Complex: Insights into magmatic system and evolution

**Senior honors thesis**

Poster #65

**Alexandra Stefania Popescu `28**

Advisor: Herbert Chang (QSS) Offshore social networks: An exploration of yachts and financial ties

**WISP intern**

Poster #6

**Isabel Prado-Tucker `28**

Advisor: Jonathan Winter & Janelle Wargo (GEOG) Changes in extreme precipitation across the Northeastern United States

**WISP intern**

Poster #118

**Samantha Alexandra Pressman `28**

Advisor: Bing He & Sophia Micale (BIOL) PI4-Kinase Fwd in trafficking and cell surface expansion during early Drosophila embryogenesis

**WISP intern**

Poster #77

**Trinity Q. Pryor `25\***

Advisor: Donna Coch (PSYC) Are definitions of obsolete words influenced by word onsets and phonological awareness?

**URAD**

Poster #11

**Constanza Pulgar `28**

Advisor: Peter Chin (ENGS) Information propagation through graph neural networks and relation to the brain

**WISP intern**

Poster #124

**Lucca Radosavljevic `28**

Advisor: Peter Chin & Ngoc Minh (ENGS)  
Improving audio processing: EnCodec

**FYREE**

Poster #40

**Anya Ramrakhani `27\***

Advisor: Irene Georgakoudi (ENGS) Precision without invasion: The path to biopsy-free cervical diagnostics

**WISP intern**

Poster #130

**Erin Rasmussen `28**

Advisor: Sarah Slotznick & Laurie Zielinski (EARS) Measuring ancient magnetic data for tectonic plate locations

**WISP intern**

Poster #95

**Molly Reichmuth `27**

Advisor: Ryan Halter & Zenia Valdiviezo (ENGS) Characterizing optical dependencies from tissue-like phantoms

**URAD**

Poster #109

**Greta Richardson `26**

Advisor: Britt Goods & Olivia Palmer (ENGS) Quantifying the effects of sex hormones on CD4+ T cell differentiation and function

**URAD**

Poster #93

**Ellie Rodgers `26\***

Advisor: Lauren Walker (MED) Perlecan regulation of neuromuscular junctions in zebrafish

**URAD**

Poster #73

**Lara H Roelofs `25**

Advisor: Joseph Tumber-Dávila (ENVS) Belowground biomass dynamics along a temperate forest edge

**Senior honors thesis**

Poster #22

**Victoria R Ruiz `26**

Advisor: Douglas Van Citters & Afton Limberg (ENGs) Effects of hyperbaric oxygen therapy on osteoblast-like cells: Implications for bone healing

**Other**

Poster #61

**Idil Sahin `26**

Advisor: Steven Frankland (COSC) Deep vision models and bounds of Shepard's universal law of generalization

**Other**

Poster #25

**Geena L San Diego `28\***

Advisor: Brenhin Keller & Jannitta Yao (EARS) Zircons & The Needle Mountains: The key to unlocking the geological history of the Southwestern U.S.

**WISP intern**

Poster #67

**Daisy Sanchez Garcia `28\***

Advisor: Lorie Loeb (COSC) Big Green Planner

**WISP intern**

Poster #153

**Tatum E Saunders `28**

Advisor: Katherine Hixon (ENGs) Mechanical characterization of 3D bioprinted bone scaffolds

**WISP intern**

Poster #111

**Issac Saxonov `28\***

Advisor: Peter Chin (ENGs) Apply manifold learning technique to design recurrent architecture for low dimension classification

**Other**

Poster #21

**Declan S Schilling `28\***

Advisor: Emily Monroe (ENGs) Ground source heat pump systems for decarbonized residential heating at a neighborhood scale

**FYREE**

Poster #10

**Shawn S Selbst `26**

Advisor: Sergey Bratus & Benjamin Kallus (COSC) Reducing risk via an application binary interface sanitizer for x86 64 standards compliance

**URAD**

Poster #113

**Evzen Selvon `28**

Advisor: Charles Sullivan & Thomas Guillod (ENGs) Studies of electrical contacts with ferrite ceramics

**FYREE**

Poster #86

**Helena Seo `25**

Advisor: Giovanni Bosco & Nicole Desmet (MED) The impact of PTEN subcellular localization on granule neuron morphology: A model for autism

**Senior honors thesis**

Poster #63

**Om Shah `26\***

Advisor: Jeremy Manning (PSYC)  
Ultra fast learning and training

**URAD**

Poster #121

**Angela Shang `27**

Advisor: Katherine Nautiyal & Sixtine Fleury (PSYC) Investigating the mechanisms of serotonin 5-HT1BR receptors in anti-depressant effects of psilocybin

**URAD**

Poster #87

**Nathanael Siew `28**

Advisor: Ryan Halter & Zenia Valdiviezo (ENGS) Developing a graphical user interface (GUI) for ex vivo tissue data collection

**FYREE**

Poster #116

**Aidan Silvestro `27**

Advisor: Ari Koeppel & Marisa Palucis (EARS) Characterizing arctic permafrost using remote sensing in Mars-analog landscapes

**EARS Rox Star Fellow**

Poster #154

**Erica Simon `25**

Advisor: Richard Howarth (ENVS) & Justin Mankin (GEOG) Long-range transport of Canadian wildfire smoke: Public health and Earth system impacts

**URAD**

Poster #152

**Aditi Singh `28\***

Advisor: Irene Georgakoudi (ENGS) Precision without invasion: The path to biopsy-free cervical diagnostics

**WISP intern**

Poster #130

**Maple Siu `28\***

Advisor: Megan Romano (MED) Communicating risks of environmental toxicants to pregnant people, children, and adolescents

**WISP intern**

Poster #51

**Dylan Elizabeth Smith `28**

Advisor: Arti Gaur & Carmen del Genio (MED) Longitudinal analysis of sex-specific microglial activity in Alzheimer's Disease

**WISP intern**

Poster #104

**Rhianna Smith `26**

Advisor: Peter Mucha (MATH) Testing for and mitigating bias in AI agents

**Other**

Poster #129

**Maia Louise Stewart `25**

Advisor: Marisa Palucis & Alec Getraer (EARS) A a changing landscape: Characterizing decade-scale landslides in Aklavik Range, NWT Canada

**Senior honors thesis**

Poster #23

**Maia Louise Stewart `25**

Advisor: Marisa Palucis & Alexander Getraer (EARS) Reconstructing 50 years of permafrost landslides in the western Canadian Arctic

**Senior honors thesis**

Poster #37

**Katherine Strong `26\***

Advisor: Donna Coch (PSYC) Are definitions of obsolete words influenced by word onsets and phonological awareness?

**Presidential Scholar**

Poster #11

**Holly Sullivan `25**

Advisor: Meredith Kelly & Justin Stroup (EARS) What are these weird layers? Clastic sedimentation in New England lakes

**Senior honors thesis**

Poster #127

**Emily E Sutton `28**

Advisor: Hung Nguyen & Yuhao Huangfu (ENGS) Nanomedicine platforms for drug delivery and molecular imaging

**WISP intern**

Poster #78

**Adam T Svoboda `27**

Advisor: Ekaterina Pletneva & Danny Jing (CHEM) Understanding spin states in cytochrome c4 proteins through a phylogenetic approach

**URAD**

Poster #123

**Eleanor G Taggart `28**

Advisor: Michael Hoppa & In Ha Cho (BIOL) The role of voltage-gated calcium channels in influencing both cytosolic and ER  $\text{Ca}^{2+}$  levels in presynaptic terminals

**WISP intern**

Poster #83

**Rachita Tamilselvan `28**

Advisor: Amanda Amodeo & Grace Carey (BIOL) Exploring the role of replication factors in early *Drosophila* development

**WISP intern**

Poster #92

**Alex Tang `28**

Advisor: Jay Dunlap & Adrienne Mehalow (MED) The ER24 mutation in *wc-2*: Effects on circadian regulation and protein interactions

**URAD**

Poster #64

**Petros Taxiarchis `28\***

Advisor: Irene Georgakoudi (ENGS) Precision without invasion: The path to biopsy-free cervical diagnostics

**Other**

Poster #130

**Elise Tong `27**

Advisor: Bing He (BIOL) Epithelial mitotic spindle orientation regulation: What role does PRC1 component Psc play?

**URAD**

Poster #54

**Devin Tulio `25**

Advisor: Magdalena Bezanilla & Shu-Zon Wu (BIOL) Secreted sulfated peptides coordinate tissue patterning through surface receptor kinases

**Senior honors thesis**

Poster #13

**Kate Twomey `28**

Advisor: Jessica Trout-Haney (BIOL) Plankton biovolumes and their applications in Lake Sunapee

**WISP intern**

Poster #101

**Bopha Um `28\***

Advisor: Lorie Loeb (COSC)  
Big Green Planner

**WISP intern**

Poster #153

**Marit UyHam `27**

Advisor: Britt Goods & Rutuja Phatate (ENGS) Analyzing responses of major organ tissues to ovulatory hormones using bulk-RNA data

**URAD**

Poster #18

**Gaelle Valmir `28\***

Advisor: Lorie Loeb (COSC)  
Big Green Planner

**WISP intern**

Poster #153

**Crystal Z Wang `28**

Advisor: Britt Goods & Olivia Palmer (ENGS) Investigating sex hormone-regulated immune responses of THP-1s

**URAD**

Poster #84

**Leon N Wang `26**

Advisor: Dipon Ghosh (BIOL) Neurobiological analyses of the effect of a wild-like habitat on *C. elegans* oviposition

**URAD**

Poster #47

**Shizan Wang `27\***

Advisor: Chandrasekhar Ramanathan (PHYS) Enhancing reinforcement learning techniques for RF pulse control of nuclear spin systems

**URAD**

Poster #147

**Katelyn M Wasacz `25**

Advisor: Katherine Hixon & Amritha Anup (ENGS) Bone char doped silk fibroin cryogels for inducing osteogenesis

**URAD**

Poster #125

**Alexandra M Will `28**

Advisor: Katherine Hixon (ENGS) Antimicrobial nanoparticles for targeted cystic fibrosis treatment

**WISP intern**

Poster #82

**Wai Yan Win Aung `28\***

Advisor: Vikrant Vaze & Lilly Yang (ENGS) Algorithms for renewable energy transition in fragile states

**FYREE**

Poster #112

**Alexandra C Wingo `28\***

Advisor: Jeremy Manning (PSYC) Increasing the efficiency of learning tools with EEG

**WISP intern**

Poster #17

**Luke Wisniewski `26**

Advisor: Feng Fu & Thomas Zdyrski (MATH) Optimal mitigation strategies through varying coupled social-climate dynamics

**Leave term research**

Poster #133

**Elise Wong `28\***

Advisor: Emily Behrman & Emily Carson (BIOL) The genetic basis of male *Drosophila* attraction to female 7,11-HD pheromone

**Other**

Poster #56

**Sophia Wong `28**

Advisor: James LaBelle (PHYS) Visualizing how the total solar eclipse alters radio signal reception

**WISP intern**

Poster #5

**Vanessa B Wynn `28**

Advisor: Soni Lacefield & Pallavi Gadgil (MED) Effect of non-exchange chromosomes on growth and cell division of budding yeast

**WISP intern**

Poster #120

**Jeffrey Xie `28**

Advisor: Peter Chin (COSC) Simulating biologically plausible complex-valued neural networks for neural synchrony

**FYREE**

Poster #80

**Jackson Yassin `26**

Advisor: Indrani Bhattacharya (MED) Contrastive learning for combining complementary medical imaging modalities

**Leave term research**

Poster #79

**Carolyn J Yee `25**

Advisor: Inas Khayal (MED) End-of-life cancer care interventions for ethnic and racial populations: A scoping review

**Presidential Scholar**

Poster #62

**Annie Yuan `28**

Advisor: Herbert Chang (QSS) Cross-platform analysis of moralized issues in the 2024 US election: Supply and demand perspective

**WISP intern**

Poster #137

**Zachariah Yusuf `26\***

Advisor: Linh Huynh (MATH) Data-driven mathematical spin glasses for stochasticity in large language model social networks

**URAD**

Poster #51

**Stephanie Zoltick `26\***

Advisor: Linh Huynh (MATH) Data-driven mathematical spin glasses for stochasticity in large language model social networks

**URAD**

Poster #51

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# ACKNOWLEDGEMENTS

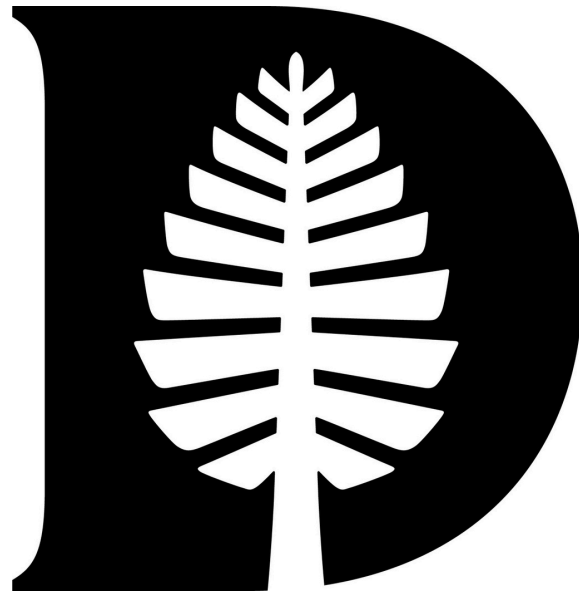
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**We extend our sincere thanks to the partners who helped to make the 2025 Wetterhahn Symposium possible:**

- Undergraduate Advising & Research
- WISP
- Dartmouth NEXT
- Dartmouth Class of 1976

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- Peter Allen & the Evans Map Room staff
- Ellen Buzzell, Randy Brown, & the staff of Conferences & Events
- Facilities Operations & Management staff
- Kristin Licciardi & the staff of the Hanover Inn
- Dartmouth's Media Production Group
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