

RACA-CON

2023 Research and Creative Activities Conference

November 4 | 1:00 PM | Interactive Learning Pavilion



Welcome

The CCS Research and Creative Activities Conference (RACA-CON) was established to promote collaboration between disciplines based on the understanding that no research or creative activity is complete until it is shared. RACA-CON provides an opportunity for students to practice communicating their work to an interdisciplinary audience of their peers and the CCS community. Presenters include CCS Summer Undergraduate Research Fellowship recipients, who have been supported by a variety of funding sources, including multiple endowed funds and The Create Fund at the College.

The conference features oral presentations and posters from students across CCS majors. Whether it be an original piece of art, literary work, music score, or a scientific research project, each RACA-CON presentation is the culmination of many hours of dedicated work by the students with the guidance of their faculty mentors.

Schedule

12:30 PM

Sign-in

Interactive Learning Pavilion (ILP)

1:00 PM

Welcome Address

ILP 1101

1:15 PM

Student Talks

ILP 1101, 2101, 1302, & Psych 1924

3:10 PM

Poster Session

ILP Courtyard

4:10 PM

Conference Close

Room Schedules

	ILP 1101	ILP 2101	ILP 1302	Psych 1924
1:00pm	Interim Dean Timothy Sherwood			
1:15pm	Nico Symons Galassi '24 (Chemistry & Biochemistry)	Sophia Champion '24 (Writing & Literature)	Abhinav (Montu) Ganesh '24 (Physics)	Andrew Fee '24 (Physics)
1:26pm	Jane Feng '25 (Biology)	Aaron Huang '25 (Physics)	Emily Beckett '25 (Biology)	Kevin Ogbonna '24 (Biology)
1:37pm	Aidan Ireland '25 (Physics)	Alex Lim '25 (Computing)	Peiyang Song '26 (Computing)	Guy Wilks '24 (Computing)
1:48pm	Ekaterina Osipova '25 (Physics)	Morgan Ohana '24 (Physics)	Mai Qi '24 (Physics)	Henry Yuan '25 (Physics)
Break				
2:05pm	Samyuktha Ramanan '25 (Physics)	Amy Somers '26 (Mathematics)	Myles O'Leary '24 (Physics)	Simon Blanch '25 (Physics)
2:16pm	Aidan Tydings '25 (Biology)	Gabriel Kumar '25 (Physics)	Milo Moses '26 (Mathematics)	Chloe Kerr-Stein '24 (Writing & Literature)
2:27pm	Cole Bentley '24 (Physics)	Aurora de Tagyos '24 (Chemistry & Biochemistry)	Sofia Hillman '24 (Physics)	July Wu '25 (Biology)
2:38pm	Max Laubstein '25 (Biology)	Tommy Dan '25 (Physics)	Coleman Forth '25 (Chemistry & Biochemistry)	Lakshmi Garcia '25 (Writing & Literature)
2:49pm	Lucian Parisi '24 (Music Composition)	Joseph Gott '24 (Chemistry & Biochemistry)	Yuan Li '25 (Physics)	Janhavi Singhal '26 (Physics)

Student Talks by Rooms

ILP 1101

Nico Symons Galassi '24 (Chemistry & Biochemistry)

Towards Aqueous Cyclopropanation of Diazoheterocycles

Advisor: Leroy Laverman

Jane Feng '25 (Biology)

CCS Tiffney Fellow

Centripetal Cell Migration Defects Caused by Polarity Proteins Knockdown Found In *Drosophila Melanogaster* Egg Chambers

Advisor: Stuart Feinstein

Aidan Ireland '25 (Physics)

CCS Dean's Physics Fellow

Optimizing the Detection of Supernova Neutrinos in the Future Deep Underground Neutrino Experiment

Advisor: Tengiz Bibilashvili

Ekaterina Osipova '25 (Physics)

CCS Dean's Physics Fellow

Comparing the properties of shallow delta-doped NVs to shallow implanted NVs

Advisor: Tengiz Bibilashvili

Samyuktha Ramanan '25 (Physics)

Synthetic Quantum Matter with Tweezer Trapped Potassium

Advisor: Tengiz Bibilashvili

Aidan Tydings '25 (Biology)

The Amoeboecene's first Konservat-Lagerstatte

Advisor: John Latto

Cole Bentley '24 (Physics)

Exploring New Form Factors for Wave-Mediated Surface Haptic Displays

Advisor: Sathya Guruswamy

Max Laubstein '25 (Biology)

Phylogenetic divergence date estimation elucidates possible paleobiogeographic scenarios for diversification of the enigmatic salamander subgenus *Plethopsis* (*Plethodontidae*: *Batrachoseps*)

Advisor: Claudia Tyler

Lucian Parisi '24 (Music Composition)

CCS Kelly Fellow

Riparian Forms

Advisor: Andrew Watts



Student Talks by Rooms

ILP 2101

Sophia Campion '24 (Writing & Literature)

CCS Fang Fellow

The Day the House Ate My Mother: A Novel

Advisor: Rebecca Brown

Aaron Huang '25 (Physics)

CCS Dean's Physics Fellow

Determination of theta conditions with single-molecule measurements of polyethylene glycol

Advisor: Tengiz Bibilashvili

Alex Lim '25 (Computing)

CCS Dean's Computing Fellow

Foil Foresight: AI Augmentation in Fencing to Enable Foil Foresight for Customized and Enhanced Training

Advisor: Phillip Conrad

Morgan Ohana '24 (Physics)

CCS Dean's Physics Fellow

MHD Superhumps

Advisor: Sathya Guruswamy

Amy Somers '26 (Mathematics)

Entropy of (S,w)-Gap Shifts

Advisor: Karel Casteels

Gabriel Kumar '25 (Physics)

Studying Supernova In Binary Star Systems

Advisor: Tengiz Bibilashvili

Aurora de Tagyos '24 (Chemistry & Biochemistry)

Elucidating the Reversion Mechanism of Donor-Acceptor Stenhouse Adduct (DASA)

Photochromic Molecules

Advisor: Leroy Laverman

Tommy Dan '25 (Physics)

CCS Dean's Physics Fellow

Laser Cooling of Radium-225 Ion

Advisor: Tengiz Bibilashvili

Joseph Gott '24 (Chemistry & Biochemistry)

The Heterogeneity of Turnover Number in Electrocatalysis

Advisor: Leroy Laverman



Student Talks by Rooms

ILP 1302

Abhinav (Montu) Ganesh '24 (Physics)

Condensed Matter Simulation for Modeling
Cosmic Ray Distribution on an MKID
Instrument

Advisor: Tengiz Bibilashvili

Emily Beckett '25 (Biology)

An Investigation into the Role of ATP in Stress
Granule Activity

Advisor: John Latta

Peiyang Song '26 (Computing)

Neural Theorem Proving in Lean 4

Advisor: Richert Wang

Mai Qi '24 (Physics)

CCS Roig Fellow

Gravitational Path Integral and the RT
Entropy Formula

Advisor: Tengiz Bibilashvili

Myles O' Leary '24 (Physics)

CCS Roig Fellow

Active Nematics on an Elastic Medium

Advisor: Sathya Guruswamy

Milo Moses '26 (Mathematics)

Vector fields, topological order, and tori

Advisor: Karel Casteels

Sofia Hillman '24 (Physics)

Exploring calibration algorithms to maximize
the null depth in KPIC's vortex fiber
nulling mode

Advisor: Sathya Guruswamy

**Coleman Forth '25 (Chemistry &
Biochemistry)**

Dr. Rajendra Singh Fellow

Influence of Plastic Deformation on the Bulk
Magnetization of Heusler

Intermetallics

Advisor: Leroy Laverman

Yuan Li '25 (Physics)

Spatially Resolved Star-Formation History of
J1044+0353: A Local Analog Galaxy of

Epoch of Reionization

Advisor: Tengiz Bibilashvili



Student Talks by Rooms

Psych 1924

Andrew Fee '24 (Physics)

CCS Dean's Computing Fellow

Hunting for Long-Lived Particles at Future Muon Colliders

Advisor: Tengiz Bibilashvili

Kevin Ogbonna '24 (Biology)

Assessing the role of URT microbiota in immune response to influenza infection

Advisor: Stuart Feinstein

Guy Wilks '24 (Computing)

CCS Dean's Computing Fellow

Non-Newtonian Accelerators

Advisor: Richert Wang

Henry Yuan '25 (Physics)

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Phase Separation in Active Systems

Advisor: Tengiz Bibilashvili

Simon Blanch '25 (Physics)

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Fabrication of 2D material structures used to probe fractional quantum Hall states

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Chloe Kerr-Stein '24 (Writing & Literature)

CCS Fang Fellow

The Lost Daughter: An LGBTQ+ Young Adult Ecofantasy Novel Manuscript

Advisor: Robert Krut

July Wu '25 (Biology)

Construction of Cell Lines to Illuminate the Trajectory and Mechanism of

Reprogramming-Induced Rejuvenation

Advisor: Stuart Feinstein

Lakshmi Garcia '25 (Writing & Literature)

From Sandinista to Stanzas: Daisy Zamora's Literary and Political Evolution in

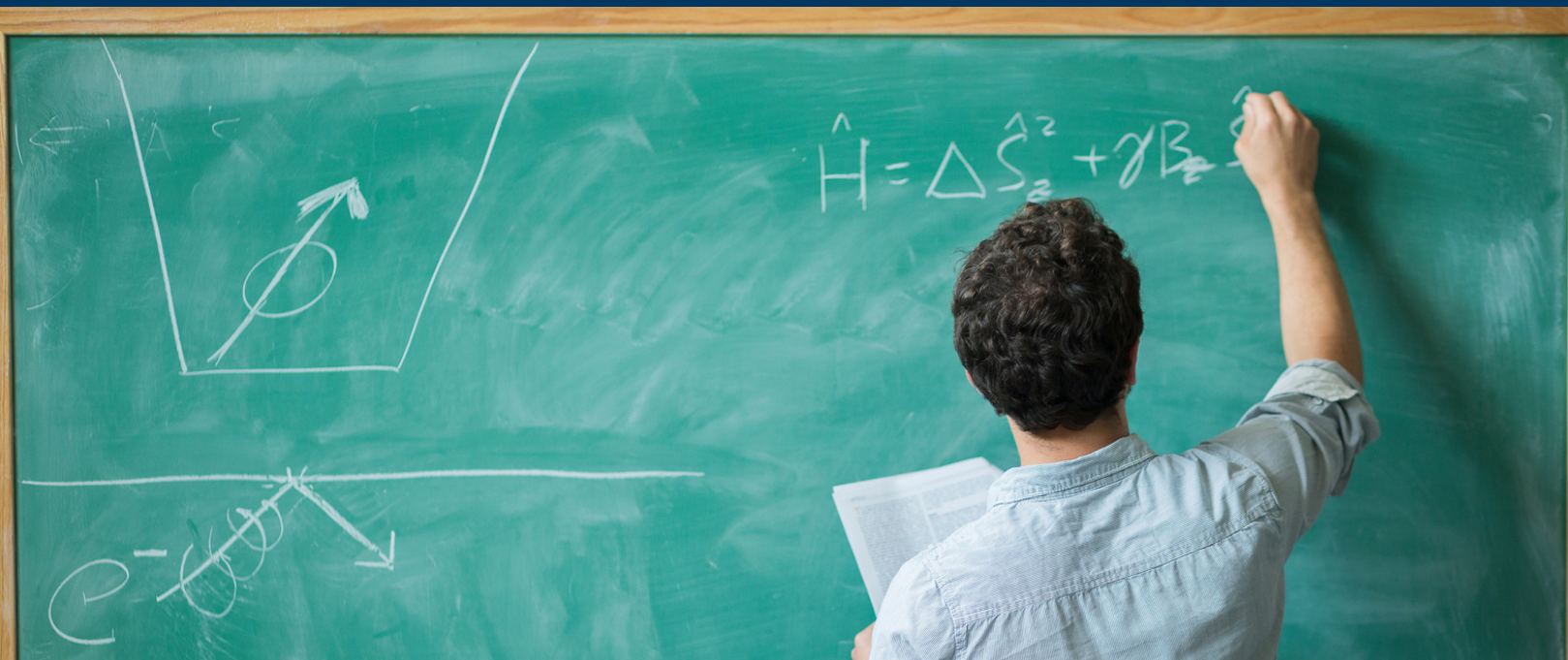
Nicaragua

Advisor: James Donelan

Janhavi Singhal '26 (Physics)

Characterization of Anaerobicity in Microfluidic Loops

Advisor: Sathya Guruswamy



Student Posters

Aidan Miller Mcshan '25 (Chemistry & Biochemistry)

Quantifying Microplastics in the Water Column and Surface Sediment in Roatan, Honduras
Advisor: Leroy Laverman

Ariel Lee '23 (Chemistry & Biochemistry)

Synthesis of Uranium Xerogels
Advisor: Leroy Laverman

Chongtao Li '24 (Chemistry & Biochemistry)

CCS Aue Fellow
An Atom-transfer Radical Cyclization by Engineered Cytochrome P450
Advisor: Leroy Laverman

Conor Pugsley '26 (Chemistry & Biochemistry)

Investigating the Swelling Behavior of Polyacrylamide Hydrogels
Advisor: Leroy Laverman

Elaina Smolin '24 (Writing & Literature)

CCS Dean's Writing & Literature Fellow
The Madness of Doubt: An Essay Collection
Advisor: Kara Mae Brown

Elliott Schaffer '26 (Physics)

A Low-Cost, Easily Expandable, Real-Time System for Monitoring Particle Accelerator Operation
Advisor: Sathya Guruswamy

Eric Zhu '26 (Physics)

CCS Dean's Physics Fellow
INFLUENCE OF PERCEIVED GEOMETRY IN ZEBRAFISH GROUP BEHAVIOR PATTERNS
Advisor: Tengiz Bibilashvili

Griffin Kramer '25 (Biology)

Mapping Off-Targets in Transcriptional Regulation Experiments using Callpeak Analysis
Advisor: Claudia Tyler

Isabella Gennuso '24 (Physics)

CCS Dean's Physics Fellow
Accretion Braking of Infalling Cold Clouds in the Multiphase Intracluster Medium
Advisor: Sathya Guruswamy

Joowon Jung '24 (Physics)

Designing an Experiment to Solve the Neutrino Mass Puzzle
Advisor: Sathya Guruswamy

Kara Chatterton '24 (Biology)

CCS Proctor Fellow
Assessing the Vulnerability of Cleaner Shrimp, Host Anemone, and Client Fish Mutualisms to Ocean Warming
Advisor: Claudia Tyler

Kelly Malone '24 (Biology)

CCS Dean's Art Fellow
Through the Looking Glass
Advisor: Dan Connally

Lakshmi Garcia '25 (Writing & Literature)

From Sandinista to Stanzas: Daisy Zamora's Literary and Political Evolution in Nicaragua
Advisor: James Donelan

Luka Sever-Walter '25 (Physics)

CCS Dean's Physics Fellow
Spectroscopy of Trapped and Laser Cooled Radium-225+
Advisor: Tengiz Bibilashvili

Maria Shapiro '24 (Biology)

CCS Foltz Fellow
STAT3 Knockout Blocks Effective Tubule Dilation and Crystal Clearance in Response to CaOx Crystal Deposition
Advisor: John Latto

Matthew Unger '26 (Biology)

Dynamic Light Scattering to Quantify Size and Number of Non-Equilibrium Tau Droplets
Advisor: Claudia Tyler

Student Posters (cont.)

Matthew Verheul '24 (Mathematics)

CCS Dean's Mathematics Fellow

Integrality of p-adic L-functions at Eisenstein Primes

Advisor: Karel Casteels

Moxie Evan '24 (Art)

CCS Dean's art Fellow

womanhood and queerness in the spiritual body

Advisor: Dan Connally

Pariya Akhiani '24 (Mathematics)

CCS Dean's Mathematics Fellow

Heavy-Tailed Self-Regularization Theory For Deep Neural Networks

Advisor: Maribel Bueno

Rachel Davis '24 (Biology)

Investigating the effect of temperature on

juvenile recruitment of

spiny brittle stars in the Santa Barbara Channel

Advisor: Armand Kuris

Runze Li '24 (Mathematics)

IGraphic \mathbb{Z} -Uniform Hypergraph Degree

Sequences

Advisor: Maribel Bueno

Sachi Juahari '26 (Chemistry & Biochemistry)

CCS Dean's Chemistry & Biochemistry Fellow

Study of the Reversion of Donor Acceptor

Stenhouse Adducts

Advisor: Leroy Laverman

Sasha Senal '24 (Writing & Literature) &**Spectrum Editorial Team**

Spectrum Literary Journal

Advisor: Kara Mae Brown

Sogol Cyrusian '24 (Mathematics)

t-Delta Sets of Numerical Semigroups

Advisor: Maribel Bueno

Zachary de Tagyos '24 (Mathematics)

CCS Dean's Mathematics Fellow

Square root subsets of Lie groups.

Advisor: Maribel Bueno

Jesus Balandrano Ramirez '24 (Art)

Distorted Memories

Advisor: Iman Djouini

Aaron Huang '25 (Physics)

CCS Dean's Physics Fellow

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Intermetallics

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Daniel Ravicz '25 (Physics)

CCS Ben-Yaacov Fellow

Climbing the Spiral Staircase: Connecting

Microscopic and Macroscopic Properties

with Tunable Flagellar Filaments

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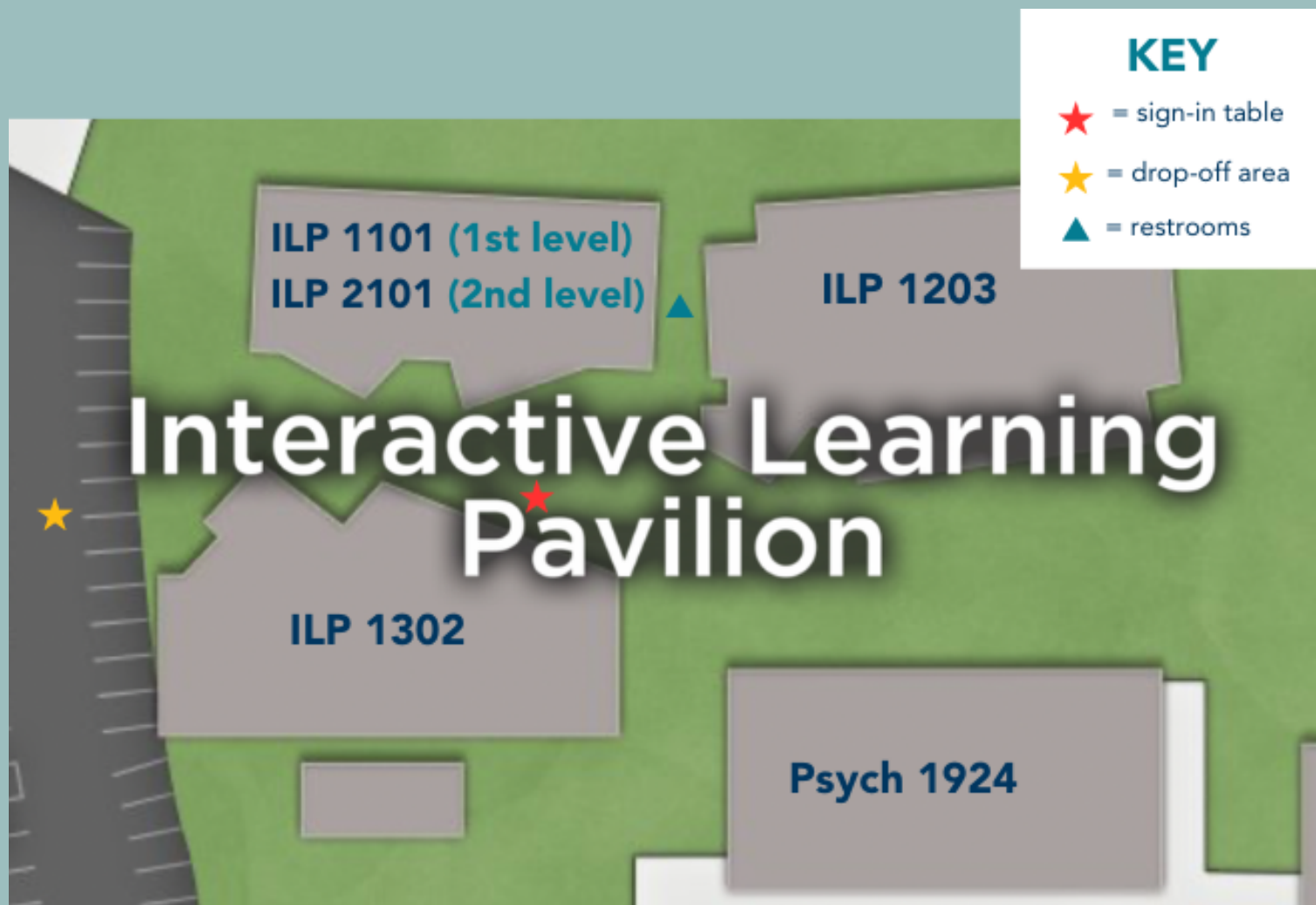
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CCS Kelly Fellow
Riparian Forms
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Interactive Learning Pavilion (ILP)



Stay Connected



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Empower CCS Students to Dream Big!

Celebrate over three decades of summer undergraduate research fellowships (SURF) at CCS! Fellowships enable students to spend a summer immersed in full-time research in established labs and creative projects at UC Santa Barbara. We are grateful to our philanthropic community for providing the critical means for students to immerse themselves in new experiences, including Summer Undergraduate Research Fellowships.

650+ CCS students since 1985 have been awarded summer fellowships with mostly 100% donor funds! Help us award 30 student fellowships in summer 2023 by making a gift today.

Give Today at ccs.ucsb.edu/give

For more information: Venilde Jeronimo | venilde@ucsb.edu

