

UA Physics State of Department



Shufang Su • U. of Arizona

Dec 11, 2024

Staff and Student Workers

• 9 staff + 3 student workers



Clare

Adrian

Lilith

Sarah

Staff Awards



CoSSAC Star Award

Kyle Rine
Mike Eklund



CoS Staff Excellence Award

Teresa Plackett
Mike Eklund

Faculty



Faculty



Alex Burant



Fuguang Cao



Elliot Cheu



Keith Dienes



Sean Fleming



Nikolay Golubev



Sam Gralla



Mohammad
Hossain



Rachel Hyneman



Ken Johns



Tai Kong



Elisabeth Krause



Sona Krishnamoorti



Andrei Lebed



Brian LeRoy



Srin Manne



Sumit Mazumdar



Stefan Meinel



Fulvio Melia



Drew Milson



Cherry Murray



Jan Rafelski



Eduardo Rozo



John Rutherford



Arvinder Sandhu



Ina Sarcevic



John Schabley



Charles Bradford



Shufang Su



Bira van Kolck



Erich Varnes



Koen Visscher



Weigang Wang



Charles
Wolgemuth



Shufeng Zhang



Andrew Steinmetz

37 faculty
10+ APS Fellows
\$8M+ research grants
18 K+ SCH

Faculty

- 3 new Faculty



Andrew Steinmetz
Start: Jan, 2024



Fuguang Cao
Start: June, 2024



Rachel Hyneman
Start: August, 2024

Many Thanks to Search Committees!

- Callum Jones join in Fall, 2025 (theoretical particle physics)
- Ongoing faculty search for theoretical nuclear physics

Faculty



Jose D. Garcia (1936 - 2024)

- ◉ research on quantum models and QED
- ◉ DGS, DUS, Interim DH
- ◉ APS Fellow
- ◉ Bouchet Award
- ◉ AAPT distinguished Service Award
- ◉ Physics research and science teacher education
- ◉ TAPT for 20 years
- ◉ UA faculty senate, chair of faculty
- ◉ Advocate for underrepresented group

Research

- ◉ **High energy physics:** discover and understand the nature of the universe
- ◉ **Nuclear physics:** structure and behavior of strongly interacting matter in terms of quarks and gluons
- ◉ **Astrophysics and Cosmology:** connect astro phenomena with fundamental physics
- ◉ **Condensed matter physics:** cooperative phenomena involving large number of interacting particles
- ◉ **Atomic, molecular, and optical (AMO) physics:** QM + laser, light-matter interactions
- ◉ **Biological physics:** explain living processes through physics

UA Physics

The Nobel Prize in Physics 2024



Ill. Niklas Elmehed © Nobel Prize Outreach
John J. Hopfield



Ill. Niklas Elmehed © Nobel Prize Outreach
Geoffrey Hinton

The Nobel Prize in Physics 2024 was awarded jointly to John J. Hopfield and Geoffrey E. Hinton "for foundational discoveries and inventions that enable machine learning with artificial neural networks"



Chi-kwan Chan (Astro), Kwang-Sung Jun (CS) Tom Purcell (CBC)

**AI-Physics-Chemistry
Nobel Jamboree
Oct 11, Friday**

Undergraduate Study

- ◉ 300+ undergraduate students with 2 physics majors
 - ◉ Physics major, minor
 - ◉ Applied Physics major (new)



Physics Graduates 2024

Bachelor of Science in Physics

Zac Carducci	Elizabeth Champagne
Shelbi Foster	Ansh Gupta
Nathan Herling	Brian Hollman
Aaron Hughes	Hassan Khan
Andrew Land	Alex Macintyre
Michela Mattia	Tintin Nguyen
Eris Park	Jamesen Reese
Zachariah Shuster	Sarah Stamer
Casey Timms	Kennedy Warrilow
Hongji Wei	Gabriel Weible

Fall/Winter 2024

Bryson Walker
Villa Victor
Colin Murphy



Bachelor of Science in Applied Physics

Anthony Jimenez	Sam Klaczynski
Joseph Mahoney	Yihe Wang
Tayvien Williams	

Fall/Winter 2024

Drew Stonestrom
Jonathan Moreland

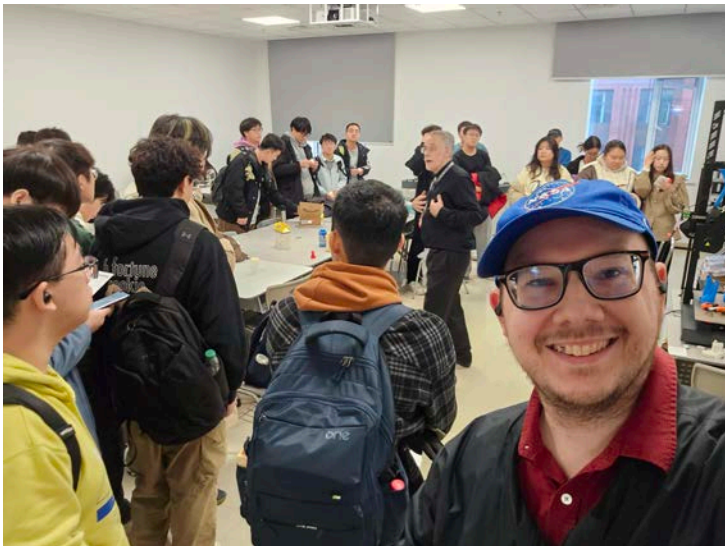


Minor in Physics

Deena Almarzooqi	Finn Anjankos
Dare Bartelt	Abinash Das
Shea DeFour-Remy	Travis Matlock
Utkarsh Upadhyay	Bridget Zimmerman

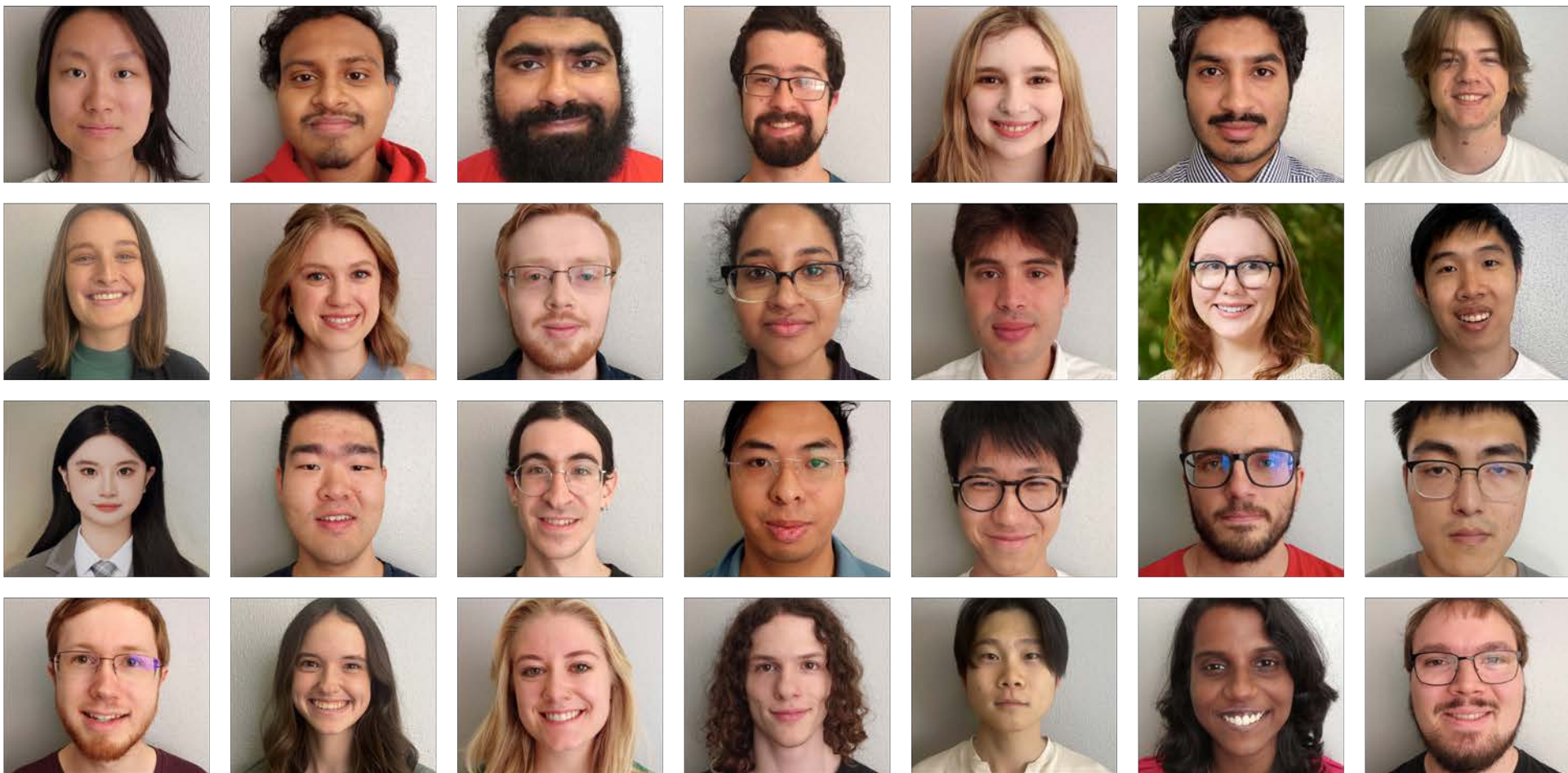
Undergraduate Study

- HEBUT Applied Physics program, 300 enrollment (Yr 4)



Graduate Study

• ~ 100 graduate students, 2024 cohort (28)



Physics Graduates Summer 2024



Physics Graduates 2024



Doctor of Philosophy in Physics

Billie Braimah
Christopher Grayson
Christopher Francis Kane
Jessica Li
Kunal Lobo
Paul Rogozenski
Michael Schott
Islan Samy Shalaby
Tyler Trent
Kane Zhang

Moshe Chesler
Elaheh Hayati
Anshu Kuma
Jingwei Liu
Jorge Palos-Chavez
Kaushik Satapathy
Ryan Sessions
Zhixue Shu
Feng Wu
Tong Zhao



Master of Science in Physics

Peadar McGrath

Zhixue Shu

Fall/Winter 2024 PhD in Physics

Michael Schott

Master Study

- ◉ (developing) Accelerated Master Program in semiconductor science and technology: 4+1
 - apply to AMP program by the end of Yr 3
 - Yr 4, take courses counted towards both bachelor's and master's program
 - Yr 5, graduate course work + research/internship

Weigang Wang, Brian LeRoy, John Schaibley, Tai Kong, ...

Student Achievements



Galileo Circle Scholars

Undergraduate

Pranav Chiploonkar

Brandon Friend

Colton Quirk

Amritaansh Srivastava

Keenan Fiedler

Megan Harrison

Tristen Shields

Graduate

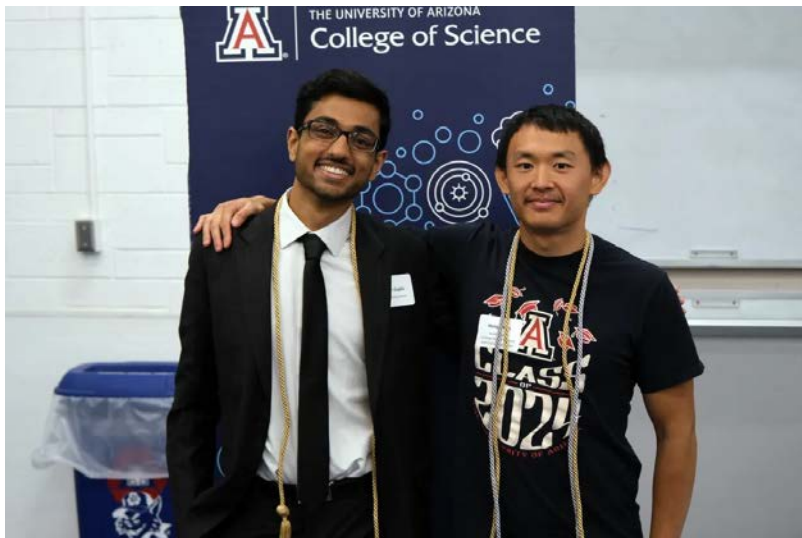
Brianna Billingsley

M Smith

Ansh Gupta
NSF GRFP Fellowship



Student Achievements



Outstanding Graduating Senior

Hongji Wei – Physics

Ansh Gupta – Astronomy & Overall College

Excellence in Undergraduate Research

Hongji Wei – Physics & Overall College

Tintin Nguyen - Astronomy

Student Achievements

Fall/Winter 2024 Outstanding Senior

Colin Murphy



Undergraduate

©TIMESTEP Summer Tech Internship

2024 TIMESTEP Interns



Aakanksha Adya
Astronomy, Physics
Neurovascular Research



Adeline Tai
Optical Sciences & Engineering
Tucson Optical Research Corp



Andres Silva-Castellanos
Comp Sci, French
Clear Core



Animesh Gong
Astronomy
Tucson Optical Research Corp



Ava Doty
Astronomy
Ampcera Inc.



Christian Burt
Astronomy, Physics
Lightsense Technology



Diego Torres-Barajas
Mathematics
Fringe Metrology



Drew Stonestrom
Applied Physics
Ampcera Inc.



Drishika Thirumalaiah
Astronomy
Paramium Technologies



Eason Wang
Astronomy, Physics
Fringe Metrology



Gabe Barros
Computer Science
OppsSpot, LLC



Isabella Olin
Astronomy, Physics
NOIRLab



Jessica Gurney
Astronomy
Freefall Aerospace



Jonah Lotz
Astronomy, Comp Sci
Madden Media



Justin Klingele
Astronomy
Paramium Technologies



Keenan Fiedler
Astronomy, Physics
NOIRLab



Namit Chandak
Astro, Physics, Math
Kiship



Pranav Chiploonkar
Astronomy, Physics
Clear Core



Reid Grotevant
Mechanical Engineering
NOIRLab



Shashank Verma
Astronomy, Physics
Fringe Metrology



Simon Ngandu
Electrical & Computer
Engineering
Leonardo Electronics



Suhani Surana
Astronomy,
Computer Science
Aith



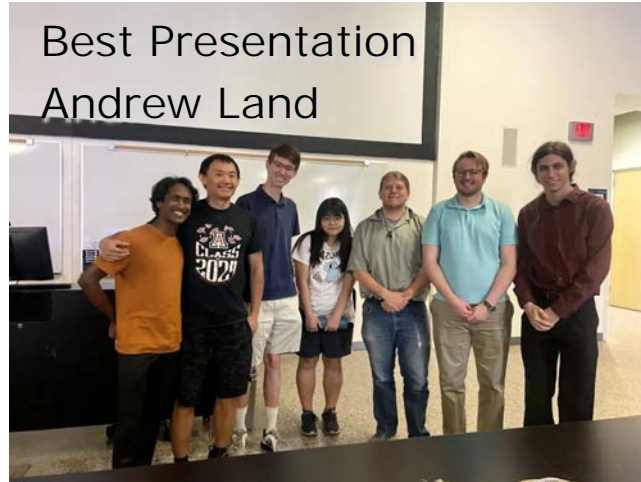
Surajinder Bhanj
Biomedical
Engineering
Securplane



Taylor Kalish
Physics, Math
NOIRLab

Undergraduate Research

Engel Symposium

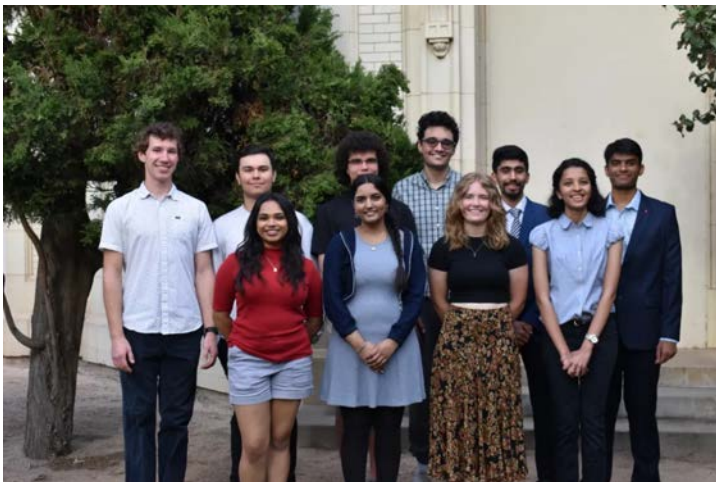


Best Presentation
Andrew Land



Best Poster
Suhani Surana

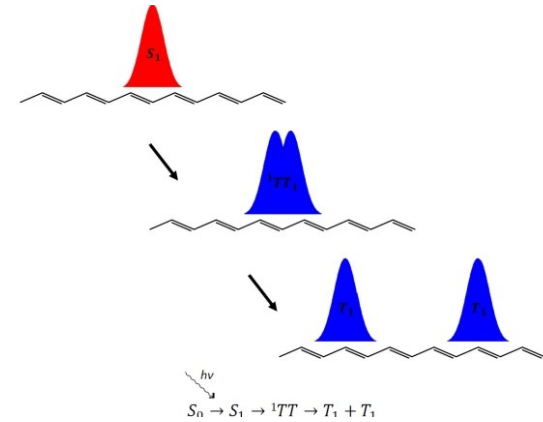
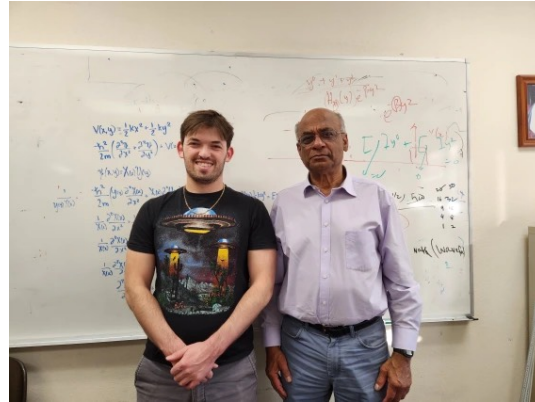
TIMESTEP Research Apprenticeship



Undergraduate Research Symposium



Student Achievements



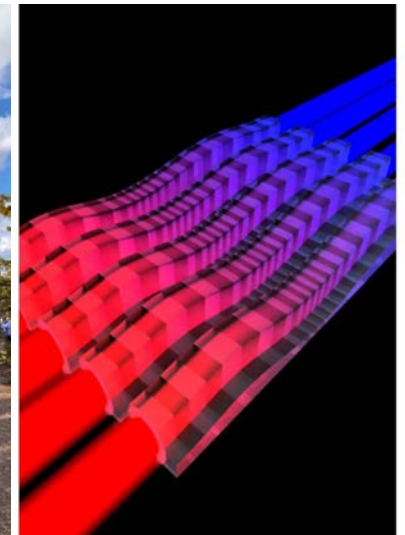
Moshe Chesler and Advisor Sumit Mazumdar
Marshall Foundation Dissertation Fellowship

Pao-Kang Chen

Physics Department Best Student Paper Award

Nature NanoTechnology

“Adapted poling to break the nonlinear efficiency limit in nano photonic lithium niobite waveguides”



Student Achievements



Yangyang Cai, Advisor: Sam Gralla
TAP Graduate Student Research Prize



Anna Roche
ARCS Scholar



Chris Grayson
Fulbright Postdoc Fellow



Maria Mutz
Charlotte Zehnder
NASA Space Grant Fellowship

Student Achievements

CoS Outstanding Graduate Student Award



Christopher Kane: Graduate Scholarship Award

Brianna Billingsley: Graduate Service Award (overall)

Maximillian Thomas: Graduate Teaching Award

2024 Physics Dept Scholarships

Cubic Corporation Scholarship

Keenan Fiedler

George Gregson Scholarship in Physics

Van Higgs

Tristen Shields

The Kenneth S. Krane Physics Scholarship

Lucas Adams

Apollo Deeney

Dr. Roger Haar Memorial Scholarship

Brandon Friend

Niels and Anna Thompson Scholarship in Physics

Isabella Olin

Vesto M. Slipher Scholarship

Philip Klaassen

The Weaver Award for Undergraduate Research in Physics

Adel Awad

Namit Chandak

Pranav Chiploonkar

Nikhil Garuda

Matan Lagnado

Suhani Surana

Aurora Wilde

John A. Leavitt Experimental Physics Prize

Christian Burt

Eason Wang

The William S. Bickel Graduate Fellowship in Physics

Anna Roche

Fanfare Graduate Travel Award

Brianna Billingsley

Moshe Chesler

Annyun Das

Forrest Guyton

Marco Jimenez Valencia

Parth Kumar

Paul Rogozenski

Caleb Webb

Erik Wessel

Awards and Achievements



Samyutka Krishnamurthy
CoS Distinguished
Early Career Teaching Award



John Schaibley, Weigang Wang
2024 CSM Fellow



Alex Burant
Undergraduate Teaching Award



Koen Visscher
Grad Teaching Award



Sam Gralla
CoS Galileo Curie Award

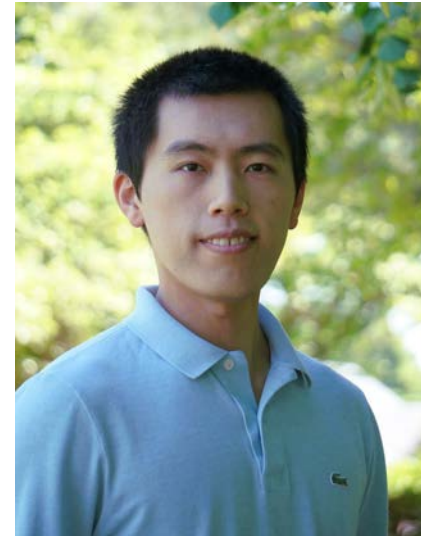
Research Grants (a fraction)



Weigang Wang and Shufeng Zhang
NSF Future of Semiconductors
1.9 M
Weigang Wang,
Army Research Lab, 1.6 M

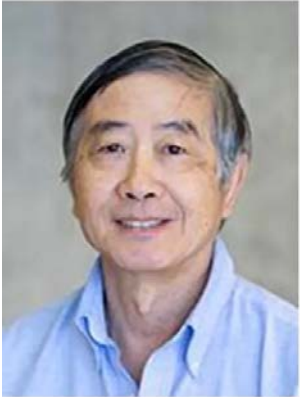


John Schaibley
NSF Award 0.423 M
AFRL Award 0.2 M

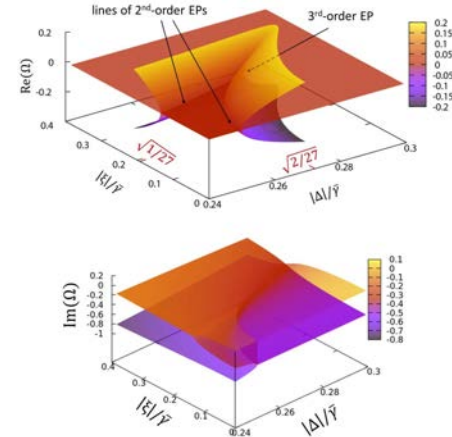


Tai Kong
NSF Career Award, 0.726M

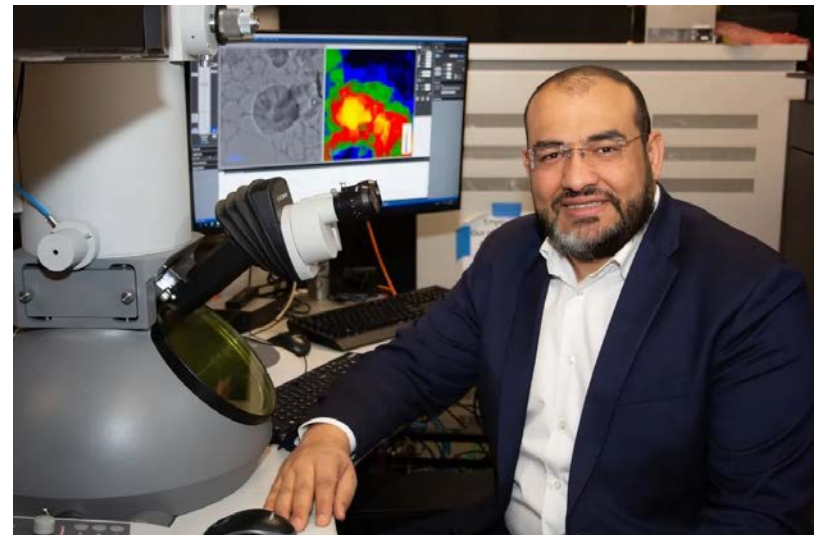
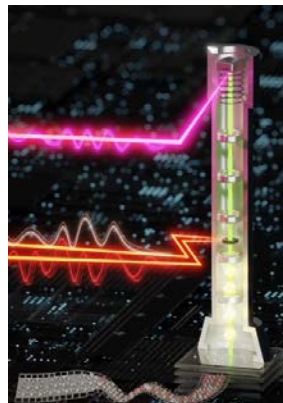
Research Highlighted



Nai Kwong, Matthew Spohnitz Rolf Binder
Semiconductor laser research,
highlighted as editor's suggestion in PRB



Prof. Mohammed Hassan
World's fastest
electron microscope



Books and Reviews



Fulvio Melia
finishing a book

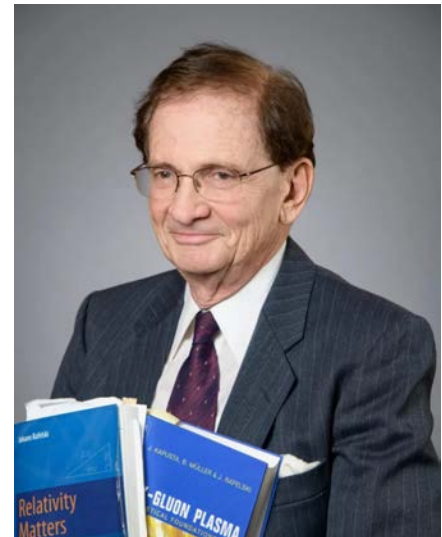


Eduardo Rozo
Free active learning
textbook on intro Mechanics



Sam Gralla
Grad Text Book
on Mechanics

Prof. Jan Rafelski and former students Birrell, Grayson, Steinmetz, Yang
300 page Review "Quarks to Cosmos: Particles and Plasma
in Cosmological Evolution"



Education

Intro Physics I studio Style

PIF: Charles Wolgemuth, Brian LeRoy, Drew Milsom



Student Organizations



Physics Club

Ellen Jesina
Elijah Walders
Julien Barrosse
Grace Gibbins
Isabella Olin
Megan Harrison

President
Vice President
Secretary
Treasurer
Outreach Coordinator
Social Media Coordinator

<https://uaphysicsclub.weebly.com/>



Student Organizations

PIE: Physicists for Inclusion and Equity

PIE Officers

President: Bri Billingsley

Vice President: Chloe Marzano

Treasurer: Erik Wessel

Secretary: Ling Gan

Outreach Coordinator: Maria Mutz

WIP Chairs

Slice of PIE (BBL) Chair: Garrett Reichenbach

First-year Mentor Chair: Bri Billingsley

International and Cultural Events: Ling Gan

Media Chair: Anna Roche

Pizza and Profs Chair: M Smith

Undergraduate Outreach Chairs of First Years:

Aaron Bartleson, Emily Pavasars



Undergraduate Journal Club

Do you like yapping about esoteric nonsense nobody cares about?!

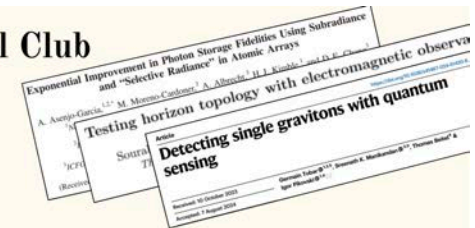
Well, so do we!



Fill out interest form and LettuceMeet!

<https://lettucemeet.com/l/BN4DZ>

Join us in PAS 236 every other Thursday (starting this Thursday 9/26) at 5pm. Snacks included!



Physicists for Inclusion & Equity!



Student Organizations

Physics Department | Graduate Student Council

Who Are We?

- Graduate Student Volunteers
 - Karl Hauser
 - Jack O'Brien
 - Erik Wessel
 - Forrest Guyton
 - Carter Eckel

What do we do?

- Departmental Events
 - "Pizza Lunch" with colloquium speaker on Fridays
 - "Grad Talks" - semi-formal physics presentations by graduate students
- Grad Lounge Library
 - Process donations + seek desired titles

Act as a resource for information & advice for graduate students

- Platform to resolve grad student concerns
- Advice on Coursework & Comprehensive Exams



Student Activities

Physicists' Tournament

Organized by Manolis Drimalas and Bri Billingsley

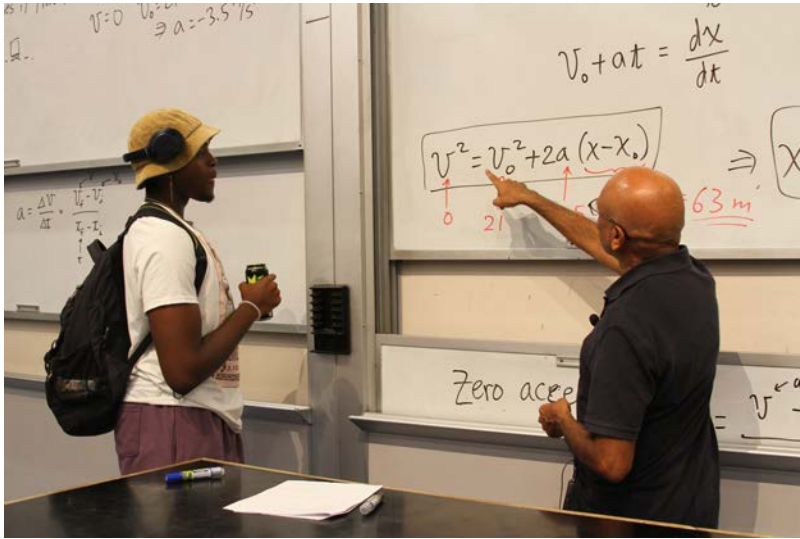


Physics Meet Yourself

Students vs Faculty



Class, Class, Class,...



KEYS Research Internship

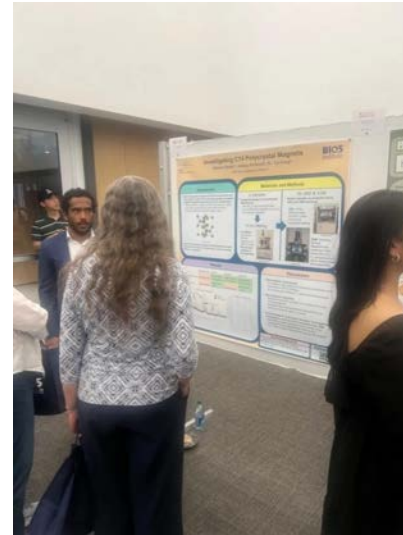
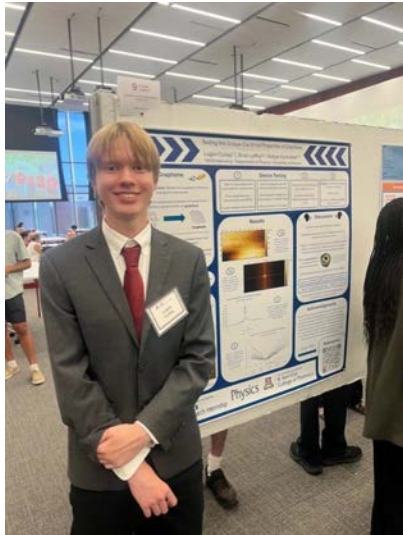
Dr. Nikolay Golubev hosted Kristy Hudgins from Tanque Verde High School

Dr. Mohammad Hassan hosted Annika Koessler from Tanque Verde High School

Dr. Tai Kong hosted Makeen Shafer from Basis Tucson North

Dr. Brian LeRoy hosted Logan Curley from Catalina Foothills High School

Dr. John Schailby hosted Cyan Gupta from Basis Tucson North



CoS Lecture Series



Feb 7, 2024 | Sam Gralla

Surprised by Gravity:

Black Holes and Their Shocking Implications



Surprise Twists That
Transformed Science

2024 College of Science Lecture Series



APS CUWiP



Outreach Activities

Physics Discovery Program @ Flandrau Center Thanks to Srin and Kyle!



Outreach Activities

Tucson Festival of Books

Thanks to John Schaibley, Kyle, PIE, and student volunteers!



Outreach Activities

Chips and Wafers Semiconductor Summer camp



Department Life



JOIN US FOR SOME MORNING FOOD AND DRINKS

Physics Department Weekly Coffee and Tea Time

MONDAY MORNINGS
10:15 AM - 11:15 AM

PAS 274

Everyone from the Physics
Department is welcome!



WELCOME BACK EVERYONE!
2024

Physics Department Welcome Event

FOOD - REFRESHMENTS - ACTIVITIES

FRIDAY, SEPTEMBER 13TH @ 4 - 6 PM

4:00 - 4:30 PM : Welcome remarks in PAS 201.
4:30 - 6:00 PM : 2nd floor lobby

DECEMBER 11TH
PAS 274 @ 10:30 AM - 2:30 PM
STATE OF DEPARTMENT ADDRESS
PAS 236 @ 12:00 PM or Zoom
<https://arizona.zoom.us/my/shufangsu>

HOLIDAY OPEN HOUSE: FOOD & FUN FOR PHYSICS FOLK

Everyone from the Physics
Department is invited to enjoy
some refreshments and celebrate
the holiday season and the end of
the Fall semester!



Department Life



Department Life



PAS Building

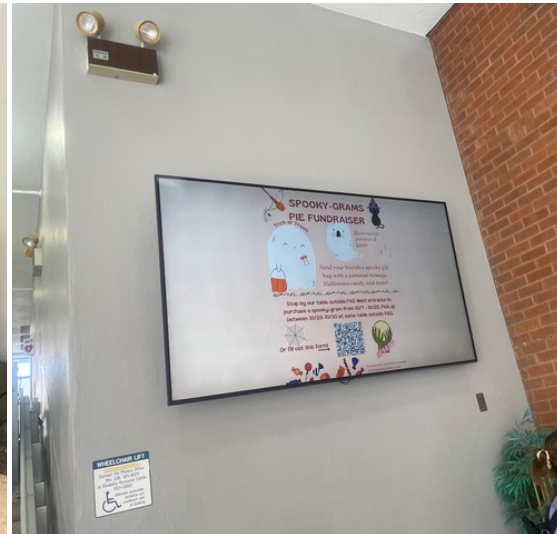


← 230-286
← EVEN NUMBERS

ODD NUMBER ↗
ACCESS ONLY
NO
CLASSROOMS



↖ 304-318
↖ 404-418
↖ CLASSROOMS



Ongoing... HEBUT Exchange



Season's Greetings

Thank you for sticking together in 2024!
Looking forward to a productive year of 2025!