

EDUCATION & PUBLIC OUTREACH



Let's make a difference, together.



BY THE NUMBERS

575
PRESENTATIONS



14221
EST. PRECOLLEGE
CONTACTS



30675
EST. TOTAL
CONTACTS



Activities estimated and reported 1/23 - 4/24 including INSPIRE/HISPARC

Monthly averages:

- **35 presentations**
- **888 precollege contacts**
- **1917 total contacts**

Star Parties

Group Presentations

Workshops

STEM festivals

Science Fair support

K12 classroom visits

Public lectures

Demonstrations

Media requests & interviews

Mentoring

Tabling events

Tours

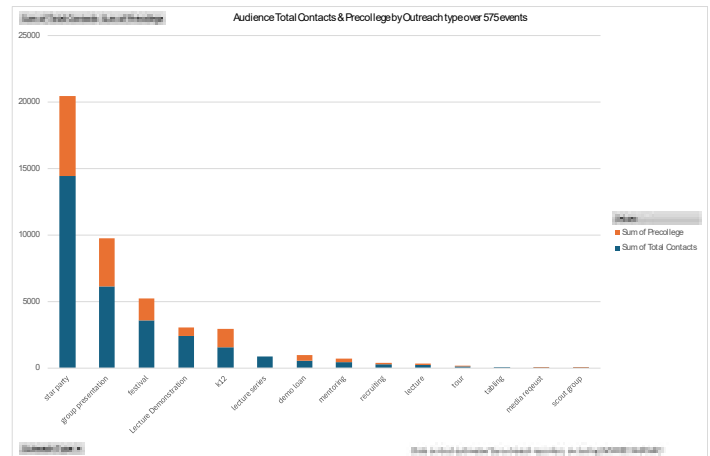
Since January of 2023, reported outreach efforts include over 500 separate outreach presentations to over 30,000 participants, including an estimated 14,000 precollege-age students.



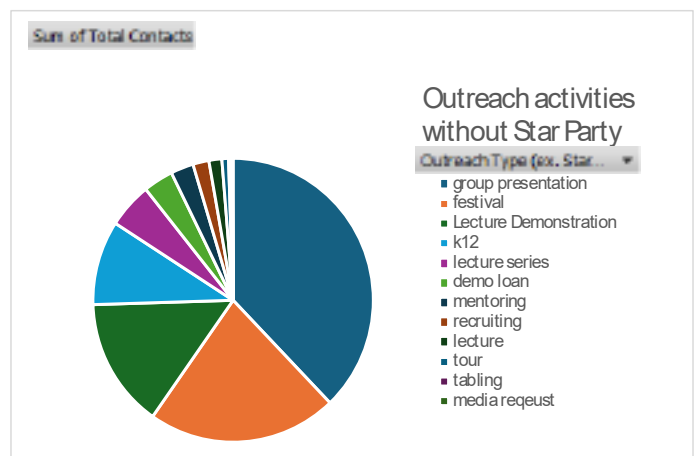
OUTREACH - DIRECT CONTACT

Outreach reported from Department members and groups cover a wide variety of activities and audiences. Many efforts directly target precollege students at the elementary and secondary level, along with supporting K12 teachers.

Between January 2023 and April 2024: Star Parties reach the largest numbers of outreach participants with an estimated total of 14,422 contacts made over a 16-month period. These efforts include star party events on campus during weekly events, K-12 campus visits and school visits as well as events held at Utah State Parks and National Parks. Other reported activities and contacts include:



Outreach activity	Sum of Total Contacts
Group Presentation	6153
Festival	3555
Lecture Demonstration	2402
K-12	1563
Lecture Series	840
DemoLoan	561
Mentoring	428
Recruiting	300
Lecture	242
Tour	124
Tabling	50
Media Reqeust	20
Scout or club group	15
Grand Total	16253

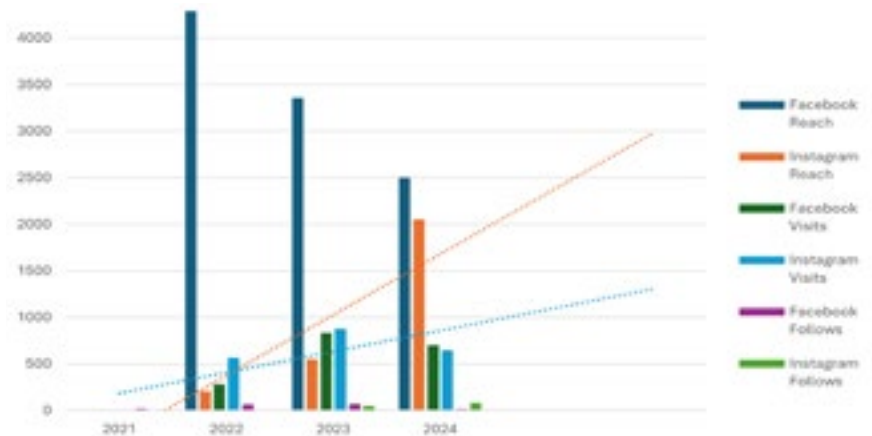


Star Parties are popular while also providing a way to provide outreach to the general public. These popular activities reach a large number of participants. Workshops and activities such as InSPIRE, Utah Physics Circle, ICECUBE Masterclass and specialized SPO presentations can impact the lives of students by supplementing their schoolwork and informing choices for college. Each activity is worthy of effort and time.



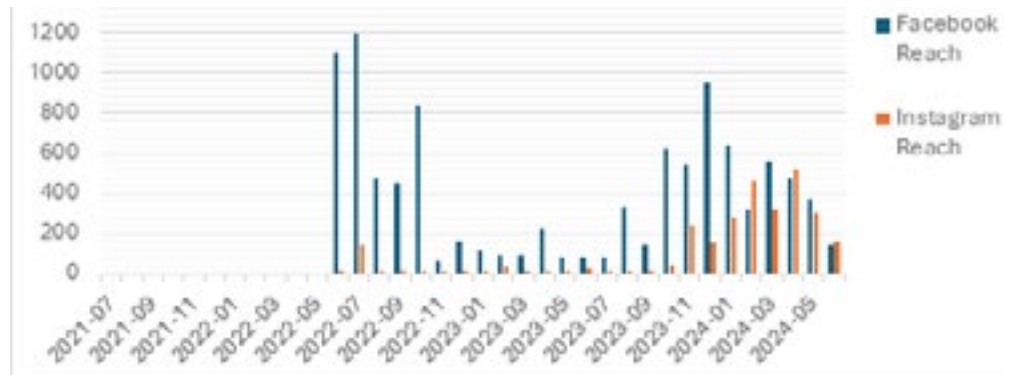
BY THE NUMBERS - SOCIAL MEDIA

Social media connects community members in the Department of Physics & Astronomy, as well as alumni, potential students, program supporters and enthusiasts. In just ten months, 130 of 436 Instagram users have followed the department account for a 30% increase in Instagram followers! *This graph reflects 5.5 months data from Jan-June 2024.*



These followers correlate with the increase in ‘reach’ over the same period. While there is not currently data on how social media might impact recruitment or declared majors, this trend for frequent and direct messaging with high school and college-age students is exciting. These platforms allow connections directly with followers who share an interest physics, astronomy, research, the University of Utah and the future of our program.

Since September 2024, department staff have focused on posting consistently to engage with department stakeholders, potential and current students and the general public. These efforts are evident in not only these charts, but are also reflected in attendance at public lectures, development campaign results, and attendance at weekly star parties.





SOUTH PHYSICS OBSERVATORY PAUL RICKETTS & ASTRONOMURS

The AstronomUrs outreach group provides star parties, presentations, demonstrations, solar viewing, dark sky assistance, astronomy training, and telescope training across the state of Utah and beyond. On campus, the AstronomUrs are based in the South Physics building, but travel all over Utah from Bear Lake to the Goosenecks. We work with K-12, astronomy clubs, cities, parks, universities, and other educational groups. All educational and public efforts are free of charge.

- Star parties across Utah
- Classroom/school visits
- High school student internships
- National Parks partners
- State Parks partner
- Dark Skies education
- Master Naturalist partnering
- Media requests/interviews

- Special astronomical events e.g. eclipse, transit
- Summer Camps
- Youth Ed/Continuing Ed partner
- Presentations for groups:
 - Upward Bound
 - PATHS
 - DYP
 - Scouts





InSPIRE/HiSPARC REFUGES & TELESCOPE ARRAY



The High School Project on Astrophysics Research with Cosmics (HiSPARC) is an international project in which high schools and academic institutions join forces and form a network to observe and measure ultra-high-energy cosmic rays with a ground-based scintillation detector.

HiSPARC offers students and teachers the opportunity to participate in real research, with the purpose of finding out more about these mysterious and rare cosmic particles.

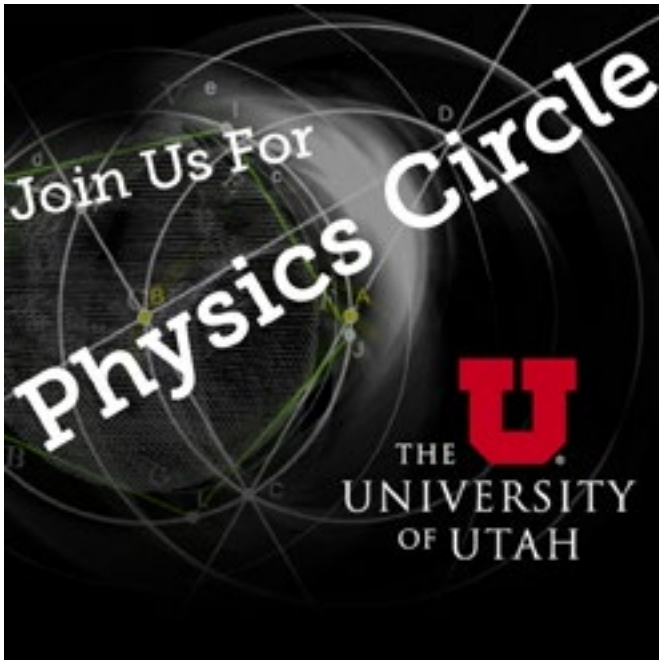
The Utah-based program InSPIRE is composed of students from REFUGES after-school program and Salt Lake Center for Science Education (SLCSE). Groups meet twice weekly. Mentored by U faculty including Telescope Array research physicists, students construct cosmic ray detectors, collect and analyze data with the HiSPARC network.

In 2023-24, InSPIRE completed the first student-built scintillator array. This array was installed on the new Utah Refugee Services Center where it collects data for cosmic radiation events.





UTAH PHYSICS CIRCLE



Utah Physics Circle is for high school students and meets twice monthly.

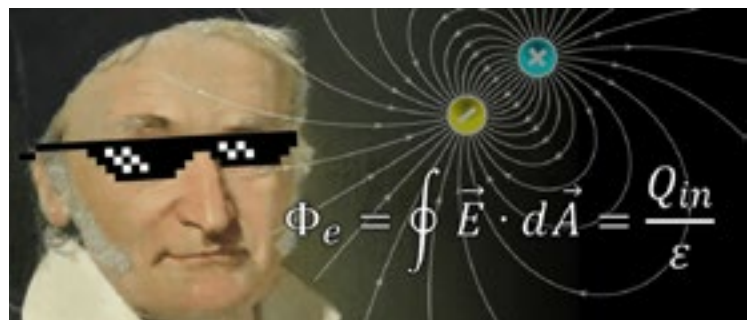
Inspired by Utah Math Circle, Oleg Starykh, Tugdual LeBohec and Kevin Davenport developed this series of activities/events.

In the first year, several high school participants spend their Saturday mornings with Physics Circle faculty.

From the Utah Physics Circle website:

“Anyone who has tried to solve a challenging physics problem knows that it requires a different type of thinking, one which goes beyond just solving a math problem. Physics is much less algorithmic and often requires a physical intuition. The fostering of this physical intuition is difficult to teach and is certainly one of the things students say they have trouble developing.

This is where the Physics Circle comes in! Our main goal is to help students learn how to think like physicists. We do this by discussing the world around us, by working through interesting problems to develop intuition, and through interesting and informative demonstrations.”

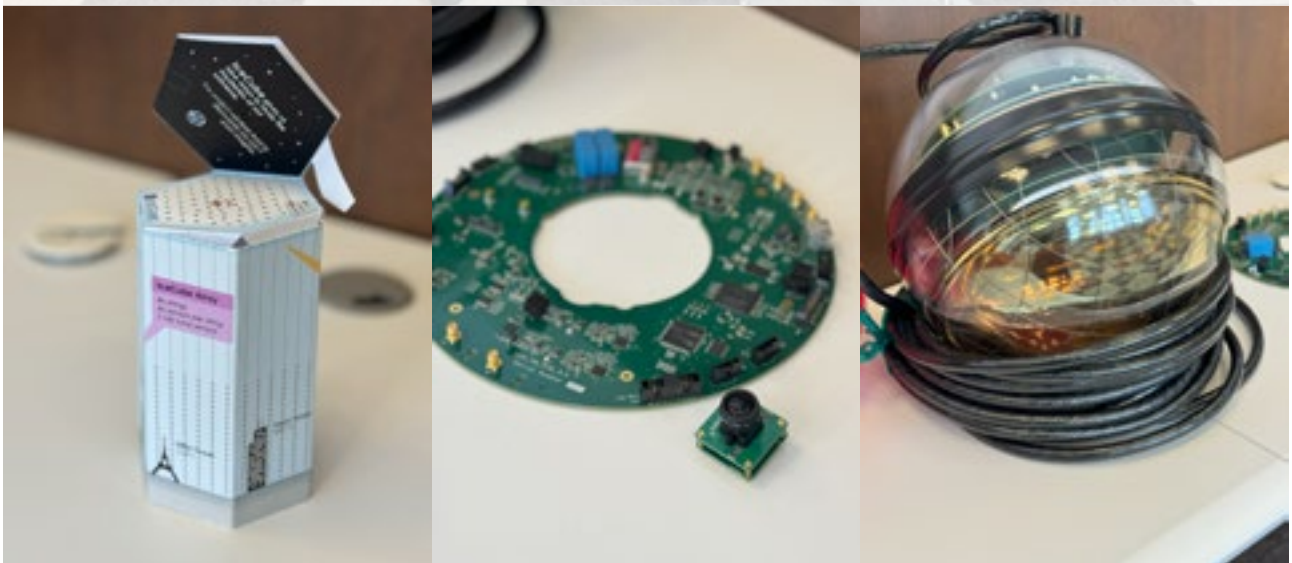




ICECUBE MASTERCLASS



The ICECUBE Masterclass is an annual event where high school students learn about astrophysics through lectures and hands-on analysis of data from the ICECUBE Neutrino Observatory, located in Antarctica at the South Pole. Students have lunch with IceCube researchers and discuss their results in a virtual meeting with other students from across the globe.



DEPARTMENT : A TEAM EFFORT

Outreach connects the U to you! By sharing engaging presentations and activities, we support our K12 teachers and students with a moment to inspire, spark inquiry and curiosity about how things work.

Within the department, outreach is provided by faculty, students and staff. These efforts cross disciplines and bring the department members together to provide a positive STEM experience.

Regular programs offer repeating events, but outreach occurs beyond these events. Presentations for individual school groups are provided on request and coordinated for on and off campus. Some events are one-time or annual activities.

Email PAoutreach@physics.utah.edu for activity or outreach coordination, or observatory@physics.utah.edu for SPO coordination and information.



**BEYOND THE NUMBERS:
IN THEIR OWN WORDS**



Adam Beehler
Department Demo Specialist

"I loved that there was current, new research on black holes. LOVED the demo guy; all reasonable things that can be done in a lab. It's nice to get to do a build and have a take home."

*-Participant feedback
2024 High School Physics Teacher Workshop*

"The masterclass was one of the most valuable experiences I've ever had. My dad and I walked in completely blind, we had no idea what to expect, and were absolutely blown away by the mentors in the class. We've been poking our noses around for a couple years now trying to find a learning experience like the one we got there. Thank you all SO much for taking time out of your weekends to give us individual advice and teach us about ICECUBE!"

*ICECUBE Masterclass
-High school student participant*

Through the guidance and support efforts of the outreach coordinator, our school has built a highly anticipated and beloved annual Science/Engineering Fair and STEAM Festival and has become a designated STEM School by the Utah Governor's Office STEM Action Center.

- Parent and elementary school PTA partner

Research and Outreach

Connecting research with the public

As the flagship research university for the State of Utah, we are committed to include students and teachers in learning about and participating in scientific research. Experiences such as these are only possible in partnership with a Tier 1 Research Institution such as the University of Utah.



RESEARCHING THE MYSTERIES OF OUR UNIVERSE

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For K-12 Teachers:

Robert Noyce Teacher Scholarship
Teach for Utah (TfU)
Research Experience for Teachers (RET)
High School Physics Teacher Workshop
Demo loans, classroom support, and lectures
Partnerships to support science education
including science fairs and STEM festivals

High School Students:

Utah Physics Circle
InSPIRE/HiSPARC
ICECUBE Masterclass
Internships - highschool CTE

General Public:

Star Party – weekly and on-request
Utah Astronomy Club – second Wednesday of
each month before star party
Astronomy on Tap - unaffiliated with the
Department of Physics & Astronomy, this public
lecture series is often hosted by members of the
Department

Indirect outreach – media interviews, social
media, Internet resources

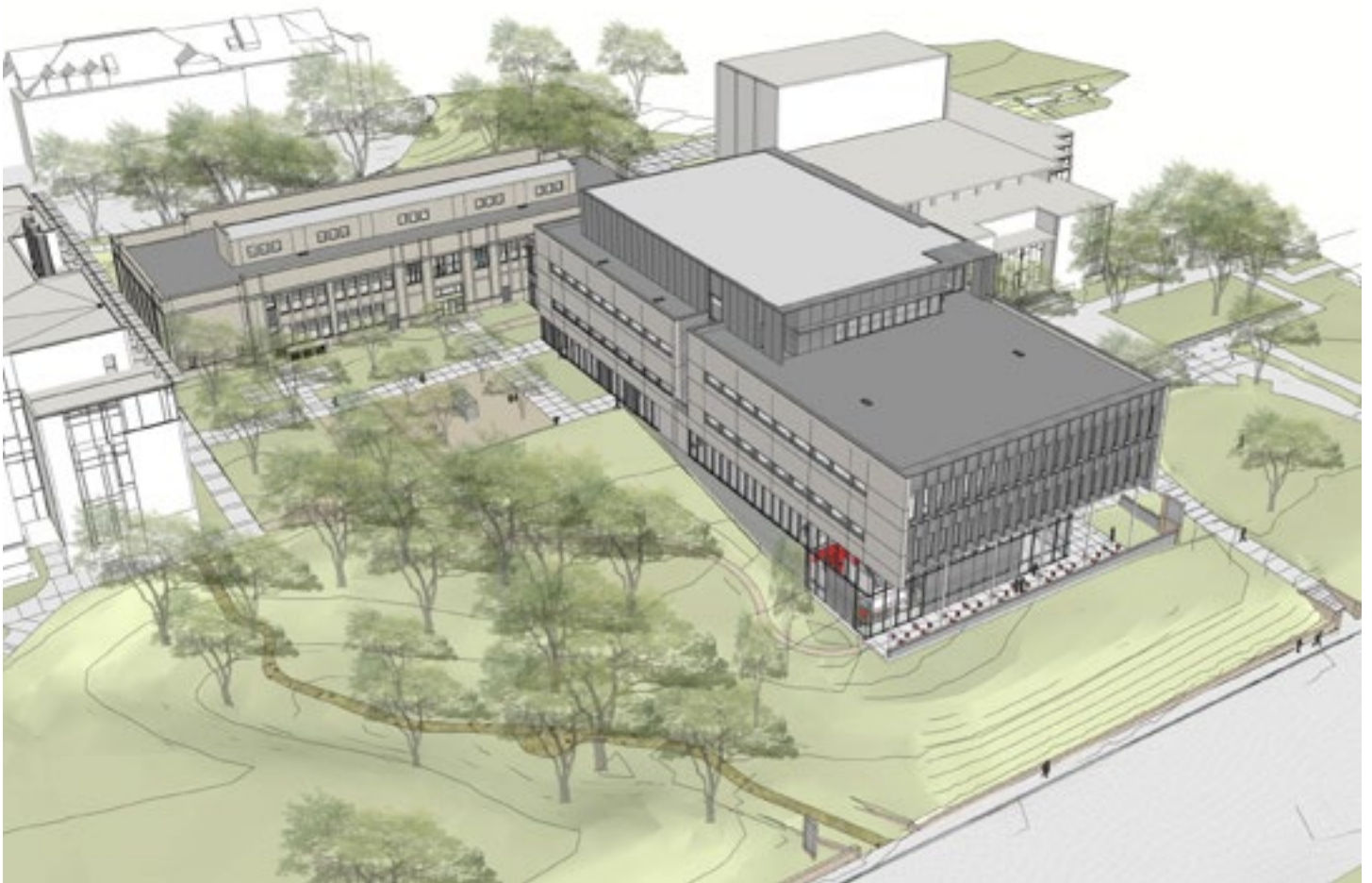
And many more events on-request or with
coordination



Department of
PHYSICS & ASTRONOMY
THE UNIVERSITY OF UTAH



World-class facilities
LS Skaggs Applied Sciences Building



World-class facilities are under construction for the Department of Physics & Astronomy and the Department of Atmospheric Sciences. The newly-named LS Skaggs Applied Sciences Building includes an updated observatory and space for our research, teaching and outreach.

Join us on this adventure!

Let's make a difference, together.