2026 International Neutrino Summer School

UC Santa Barbara, Santa Barbara, CA, USA

June 29 - July 10, 2026

Local Organizing Committee:

David Caratelli
Fan Gao
Xiao Luo
Lan Nguyen

17th International Neutrino Summer School

Year	Location	Date	Link
2025	Fermilab, USA	Aug 11-22	https://indico.fnal.gov/event/68891/
2024	Bologna, Italy	June 3-14	https://agenda.infn.it/event/39075/
2023	Fermilab, USA	Aug 7-18	https://indico.fnal.gov/event/57378/
2021	Cern (virtual)	Aug 2-13	https://indico.cern.ch/e/inss2021
2019	Fermilab, USA	Aug 5-16	https://indico.fnal.gov/event/19346/
2018	Mainz, Germany	May 21-June 01	https://indico.mitp.uni-mainz.de/event/118/
2017	Batavia, IL, USA	August 7-18	https://indico.fnal.gov/event/INSS2017
2016	Quy Nhon, Vietnam	July 17-29	http://vietnam.in2p3.fr/2016/inss/overview.php
2015	Sao Paulo, Brazil	August 17-28	http://www.ictp-saifr.org/?page_id=6802
2014	St Andrews, Scotland	August 10-22	https://indico.cern.ch/event/300715/
2013	Beijing, China	August 6-16	http://inss2013.ihep.ac.cn/
2012	Blacksburg, Virginia, USA	July 10 – 21	http://inss2012.phys.vt.edu/
2011	Geneva, Switzerland	July 18-30	http://dpnc.unige.ch/NeutrinoSummerSchool2011/
2010	Yokohama / Tokai, Japan	August 23-31	http://inss.kek.jp/2010/01home.htm
2009	Fermilab, Illinois, USA	July 7-17	http://nuss.fnal.gov/
2007	Fermilab, Illinois, USA	July 2-13	http://nuss.fnal.gov/html.07/

Welcome!

Welcome to the 17th International Neutrino Summer School

We are proud to host INSS this year and welcome all of you to Santa Barbara.

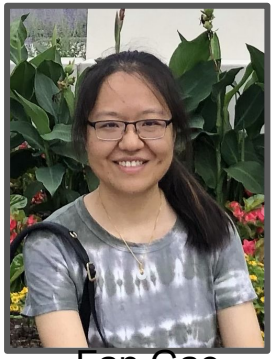
INSS plays an important role in our field supporting the diverse international community that makes up neutrino physics.

Thanks to the International Advisory Committee, past INSS hosts, and the Neutrino Physics Center at Fermilab for their help and advice as we planned for the summer school.

inss26@physics.ucsb.edu
https://indico.global/event/16507/

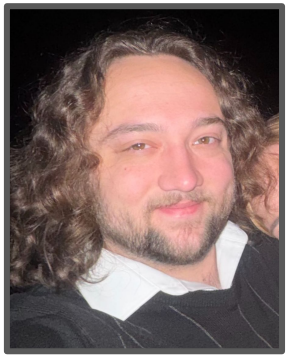
Local Team

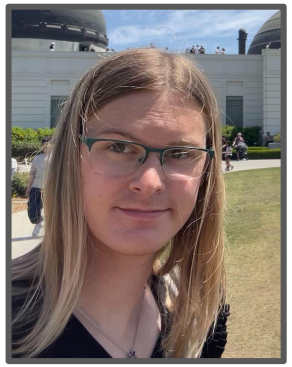

David Caratelli


Fan Gao


Lan Nguyen


Seth Webb


Christopher Sauer


June Muhlenkamp


Michaelia Fang


Xiao Luo


Alex Antonakis


Sabrina Brickner

Local Team

Thanks to Christine Griffin, Missy Olsen, and Elizabeth Strait from the physics department for logistics help and Aleah Van Woert from the Bren school for help with the lecture room.

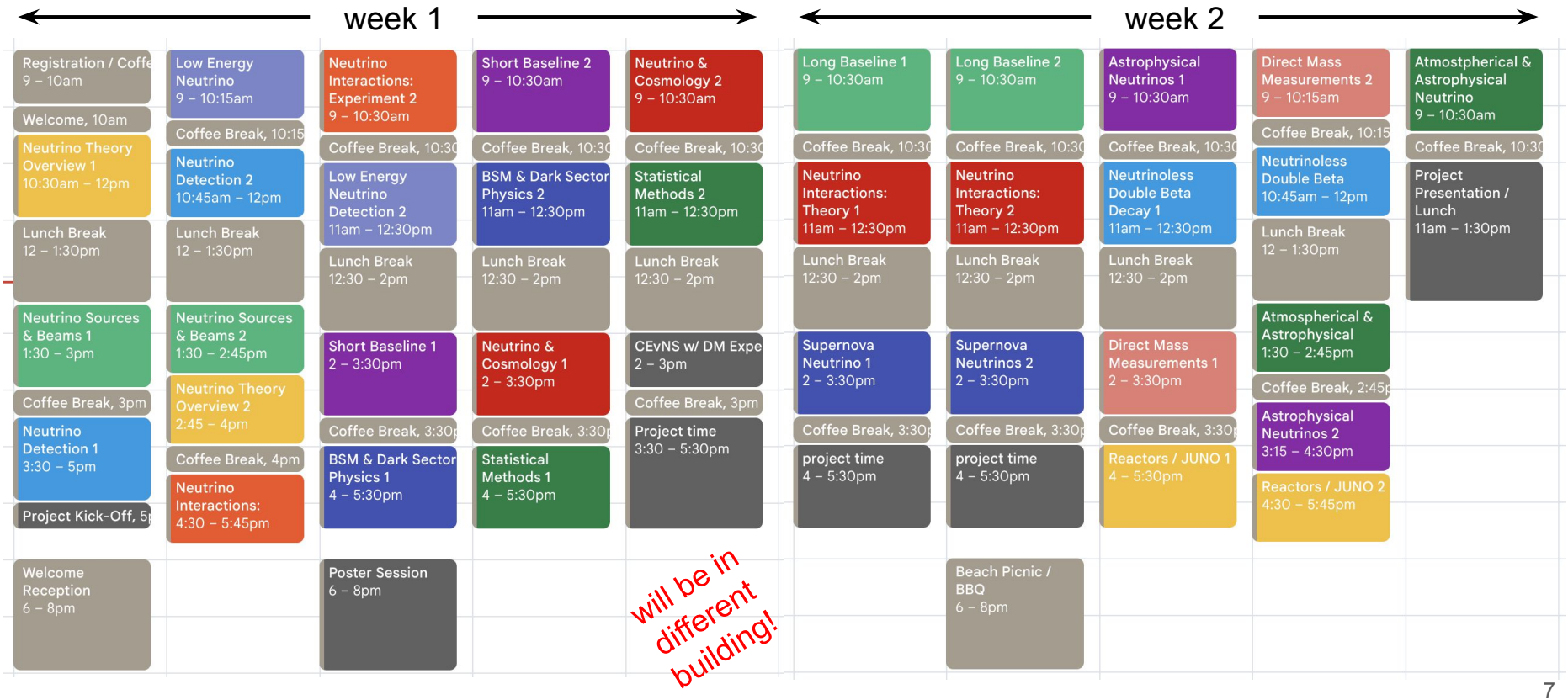
Topics & Lecturers

- Neutrinos: Theory Overview - Peter Denton, BNL
- Neutrino Sources and Beams - Laura Fields, Notre Dame
- Neutrino Detection - Brooke Russell, MIT
- Neutrino Interactions: Theory - Natalie Jachowicz, Gent University
- Neutrino Interactions: Experiment - Teppei Katori, Kings College London
- Accelerator Experiments: Long-Baseline - Zoya Vallari, Ohio State University
- Accelerator Experiments: Short-Baseline - Lauren Yates, Notre Dame
- BSM and Dark Sector physics - Matheus Hostert, University of Iowa
- Neutrinoless Double Beta Decay Experiments - Giorgio Gratta, Stanford
- Direct Mass Measurements - Diana Parno, Carnegie Mellon University
- Reactor Neutrinos - Pedro Ochoa-Ricoux, UC Irvine
- Low Energy Neutrino Detection - Phil Barbeau, Duke University
- Atmospheric and Astrophysical Neutrino Detection - Lu Lu, University of Wisconsin-Madison
- Neutrinos and Cosmology - Graciela Gelmini, UCLA
- Astrophysical Neutrinos - Mary "Hallsie" Reno, University of Iowa
- Supernova Neutrinos - Jeff Tseng, Oxford
- Statistical Methods - Claudio Campagnari, UCSB

Thanks to all the lecturers participating this year!

School Schedule

up-to-date on indico: https://indico.global/event/16507/timetable/



Coffee & Breaks

Morning / afternoon coffee breaks in between lectures. 30 minutes.
Let us know if you have snack preferences / suggestions / favourites…

we're in here

balcony up the stairs

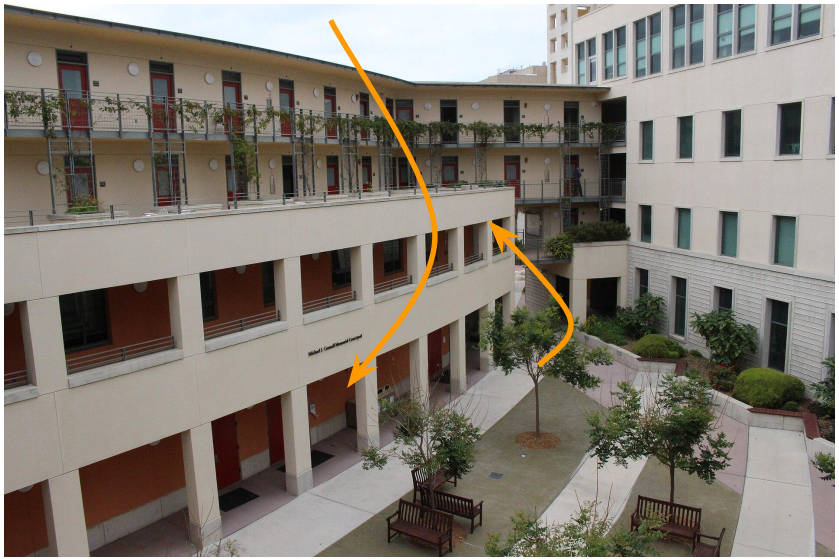
Bren Venue

We are in room 1414. Doors close at ~6ish.

Bathrooms in courtyard. Water refill station outside the lecture hall to your right.

All-gender restrooms are located in rooms 2506, 4506, and 4504

we're in here

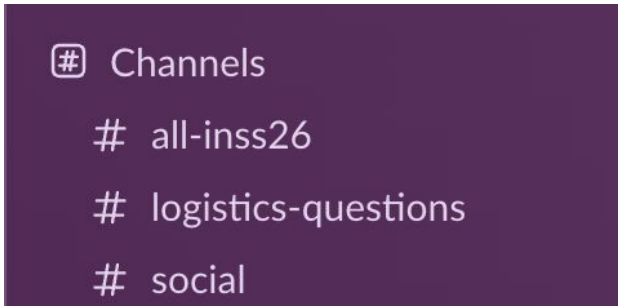


balcony up the stairs

Slack Workspace

Set up an INSS26 Slack workspace: inss26.slack.com

You can join with the following link: https://join.slack.com/t/inss26/shared_invite/zt-42buozxw6-cNFmZWnskNHdEsYSoX7viA

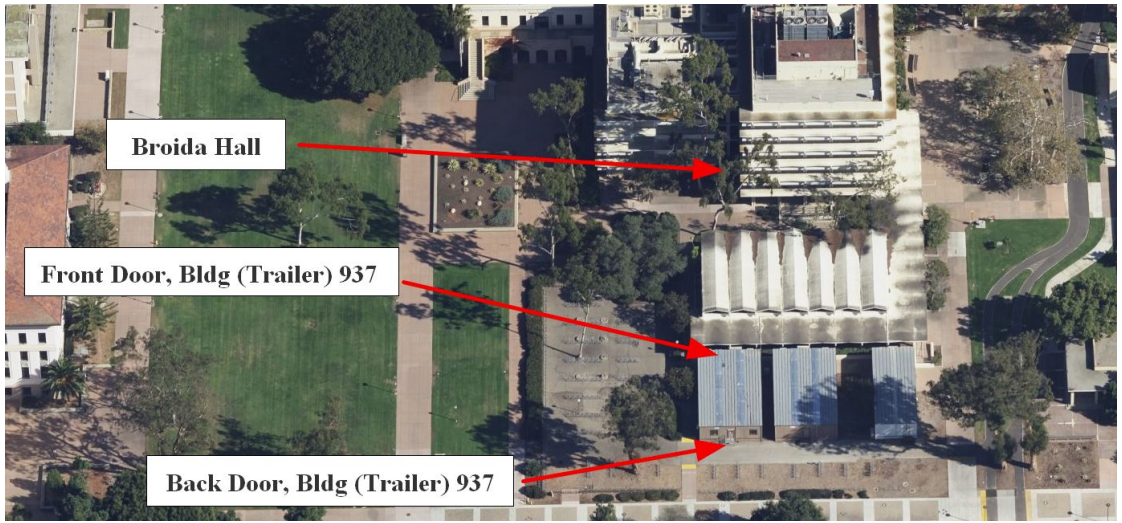


Poster Session - Wednesday

Poster Session is Wednesday evening in the Bren courtyard.

If you printed your poster at UCSB, check for instructions on pickup via email from Elizabeth Strait.

"*We saved your poster in a special box and labeled it with your first and last name. You can pick it up behind the front desk, BLDG/Trailer 937 9-3 PM M-F. The front door to the trailer is unlocked in case no one is there.*"



Projects

In addition to lectures, INSS includes projects on the breadth of topics covered in the school.

Will circulate sign-up sheet for projects and split people in teams of 3-4.

Aim is to work together on assigned project and present your results on the closing day. More details will follow.

Dedicated time to work on projects:

- Friday Week 1
- Monday Week 2
- Tuesday Week 2

Social Events / Activities

- This evening: Welcome reception 6-8 PM in Bren courtyard
- Wednesday 07/01: Poster Session w/ pizza in Bren courtyard
- Tuesday 07/07: Beach picnic at Goleta Beach
- Lab tours over the course of the two weeks
- Project presentations / poster prizes: Friday July 10th

Aim to have other more informal / organic gatherings.

Tours

INSS 2026 Lab Tour Preference Survey

We are holding lab tours for physics lab during lunch breaks. All participants will get at least **1 tour at the Institute for Terahertz Science and Technology** and **1 tour from a list of physics labs**. Each tour will be around 30~45min.

For the 1st tour at the Institute for Terahertz Science and Technology, there will be six tours spanning over 2 weeks available to everyone. Please indicate your preferred date.

For the 2nd tour for one of the physics labs, please indicate your ranked preferences for each lab. Tour spaces are limited but we will try our best to assign everybody to their top choice.

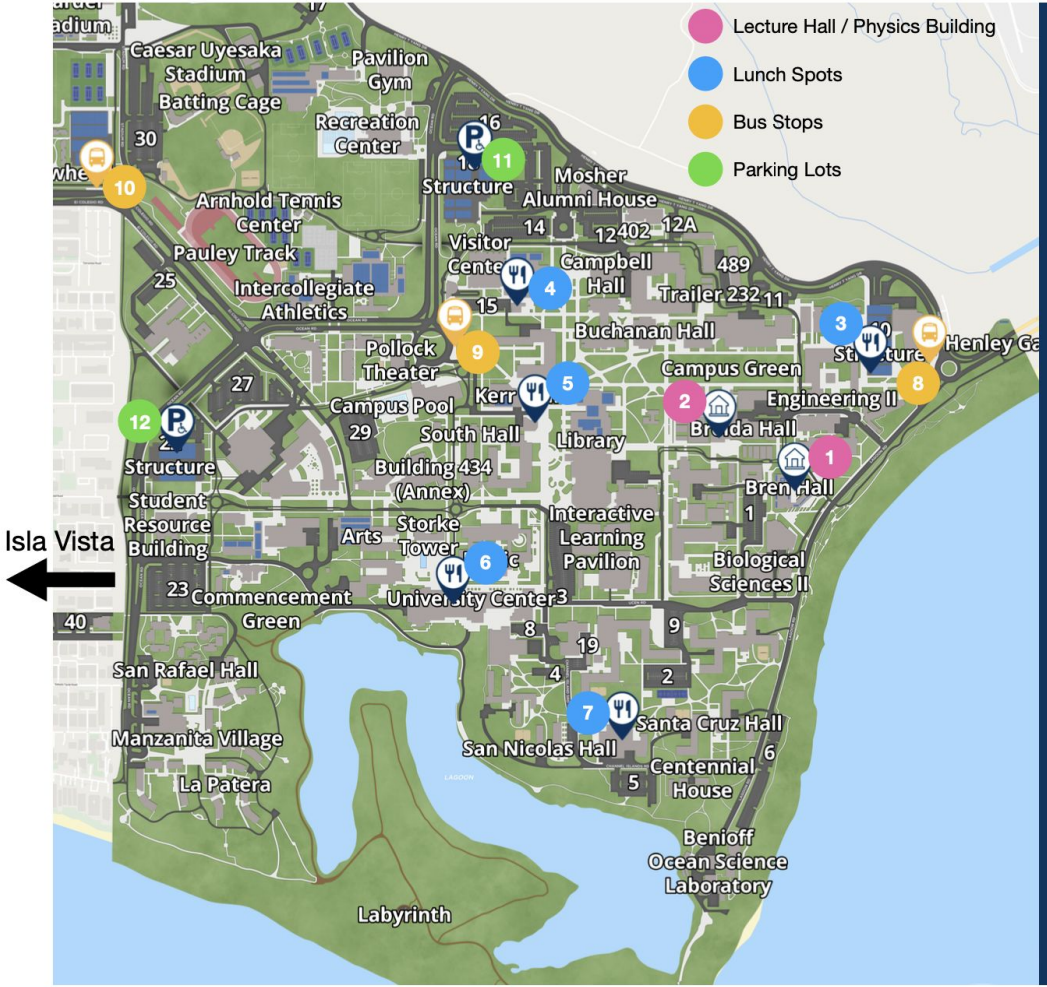
DEADLINE:

6pm PT Monday June 29th: Google form will be closed , we will assign lab tours based on your selections.

Coffee break on Tuesday June 30th:

- Sign up sheets will be opened, in which you will see your assignment and be allowed to register for more lab tours if space allows.
- We will also provide the details for when/where to meet for the tours. The first tours will start on Tuesday June 30 12:30pm.

Sign-up here!



UC SANTA BARBARA

1	Bren Hall (INSS26 Lectures)
2	Broida Hall (Physics Dept)
3	Courtyard Cafe (opens July 6)
4	Coral Tree Cafe
5	The Arbor
6	University Center (UCen)
7	De La Guerra Dining Commons
8	MTD Bus Stop - Elings Hall
9	MTD Bus Stop - North Hall
10	MTD Bus Stop - El Colegio and Stadium Rd
11	Parking Structure 18 - Mesa Parking Structure
12	Parking Structure 22

More information on UCSB interactive map

Transportation

Details on transportation are on indico:
https://indico.global/event/16507/page/5174-transportation

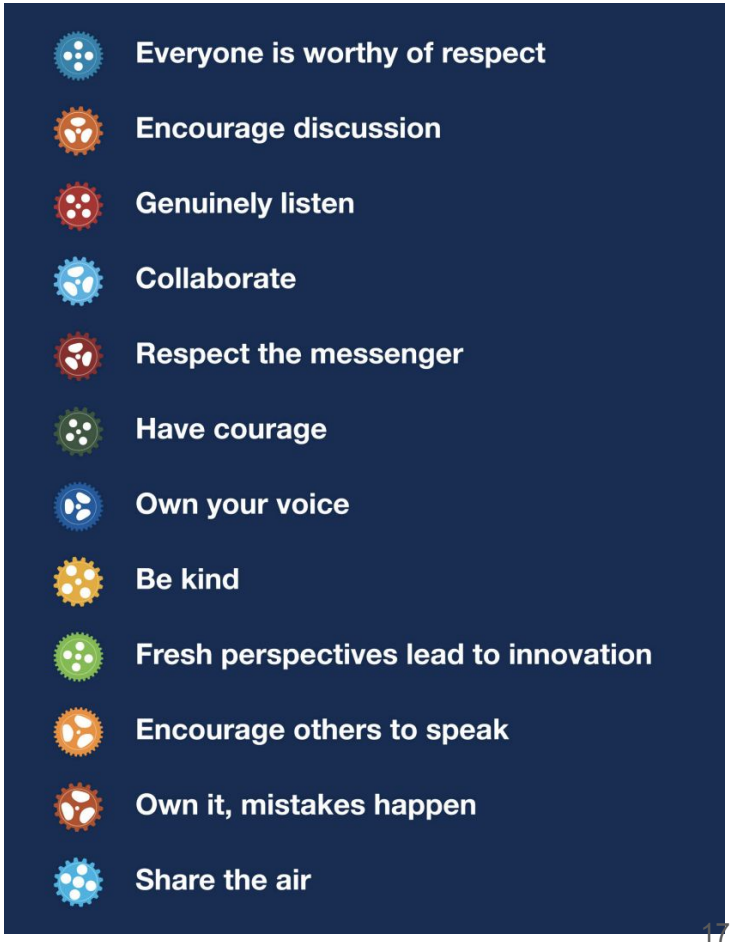
You can buy a 10-ticket bus pass at the campus bookstore ($17.50 / 10 tickets vs. $2.50 regular fare)

Isla Vista Bycicle Boutique rents out bicycles ($60/week)
https://www.islavistabicycles.com/

Code of Conduct

By attending this meeting, we agree to abide by the Fermilab Statement on Community Standards

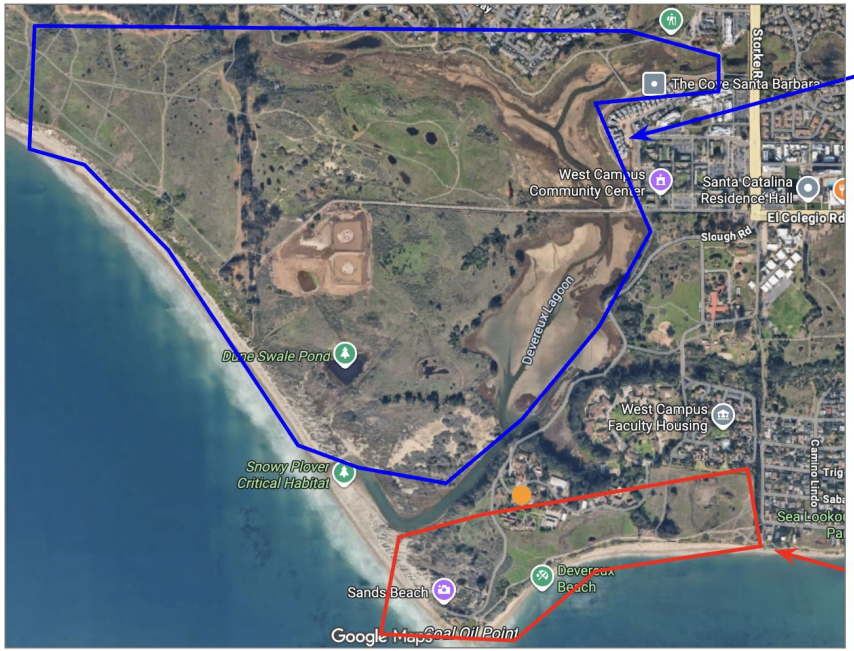
The purpose of this Statement of Community Standards is to establish and communicate the set of expectations that all members of the Fermilab community shall follow. Disruptive or harassing behavior shall not be tolerated regardless of race, color, religion, disability, age, gender, veteran status, sexual orientation, gender identity, and/or nationality.



https://indico.global/event/16507/page/5874-things-to-do

Things to Do

Nature / Beach Around Campus…



A little bit about UCSB Physics & Santa Barbara…

UCSB Physics

~50 faculty
~200 graduate students
~1,000 undergrad physics majors
(largest program in the country)

Hosts ~few week programs on topics across physics year-round

E.g. right now:

- “Biological Learning Without a Brain”
- “New Trends in Non-Equilibrium Dynamics”

Broida Hall: Physics Department

Kavli Institute for Theoretical Physics

UCSB Physics Research

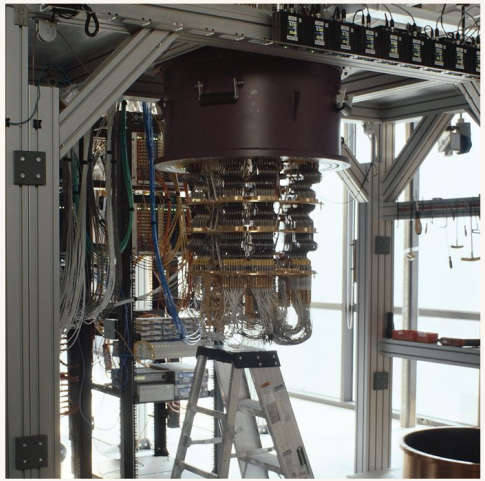
Research Highlights:

- 5 Nobel Prizes in physics, including 2025 for “For the discovery of macroscopic quantum mechanical tunnelling and energy quantisation in an electric circuit”

nanofab.ucsb.edu

UCSB NanoFab

Google Quantum AI

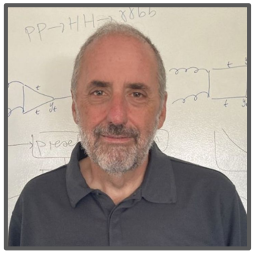


LAB

Our research lab

Our Santa Barbara facility is a critical hub for our quantum computing research and development. This campus houses our advanced quantum processors, fabrication capabilities, and the dedicated teams working across our full quantum systems. We are committed to the pursuit of building large error-corrected quantum computers and are optimistic about the potential breakthroughs that lie ahead.

UCSB Physics: HEP Group


Claudio Campagnari


David Caratelli


Joe Incandela


Xiao Luo


Nathaniel Craig

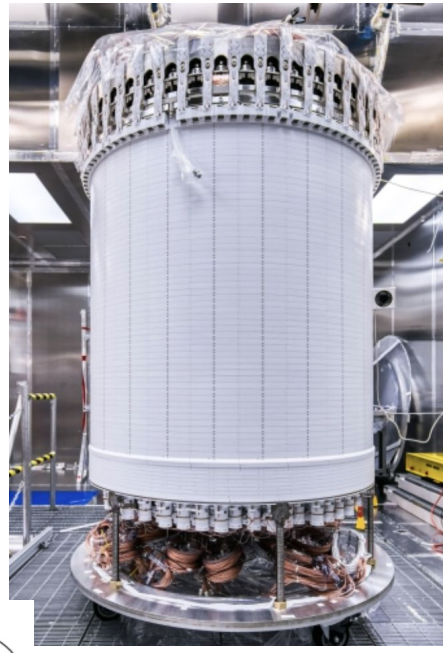

Hugh Lippincott

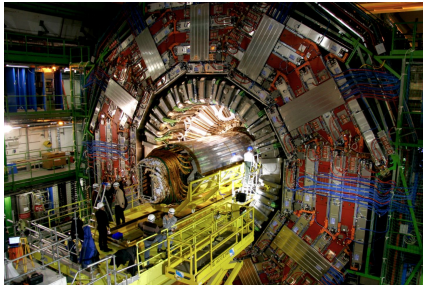
Harry Nelson


David Stuart


Jeff Richman


Prateek Agrawal





DEEP UNDERGROUND NEUTRINO EXPERIMENT

CMS

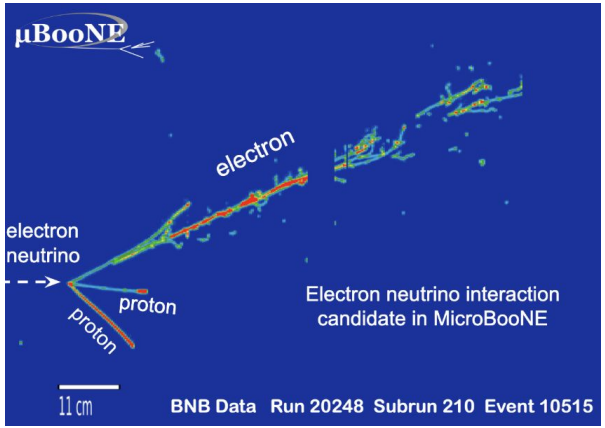
LZ

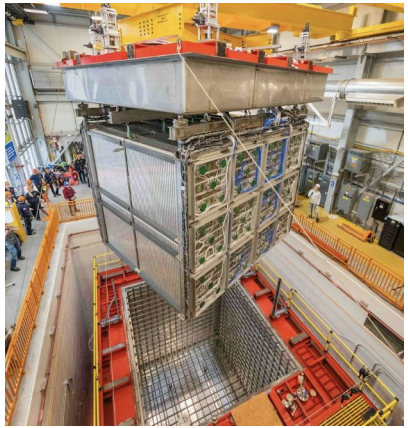
u c s b

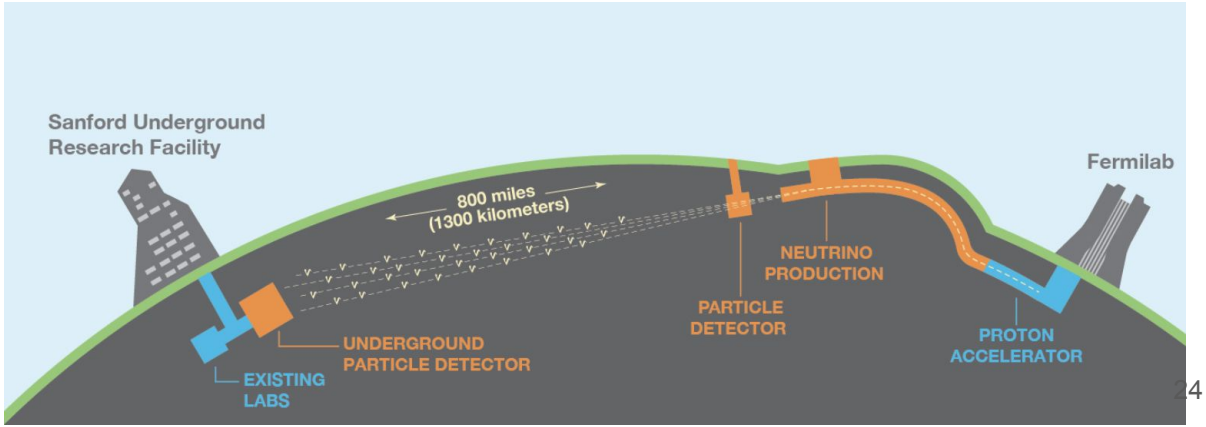
UCSB Neutrinos: SBN (MicroBooNE, SBND) & DUNE

David Caratelli

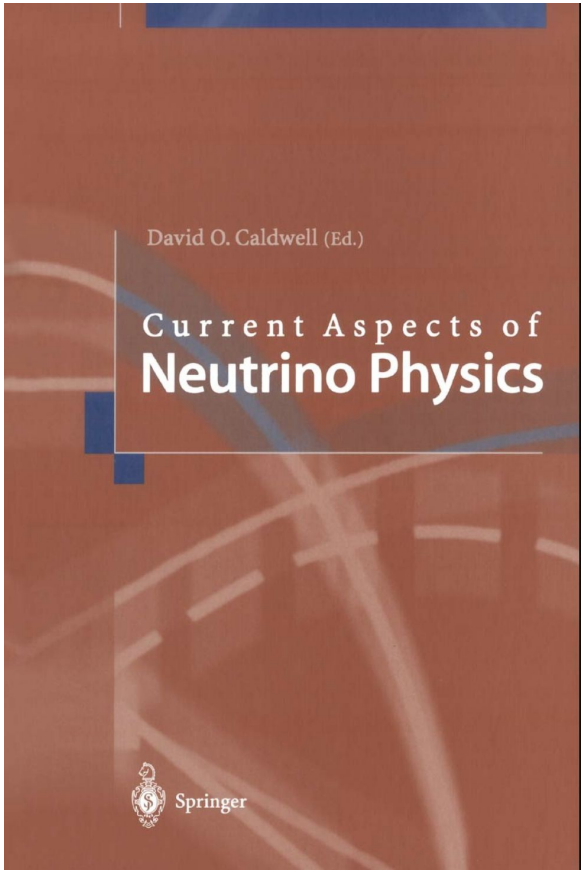
Xiao Luo



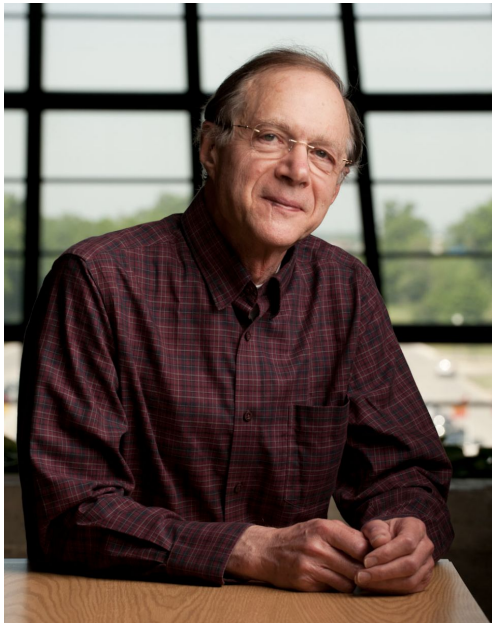




UCSB Physics: Connections with Neutrinos



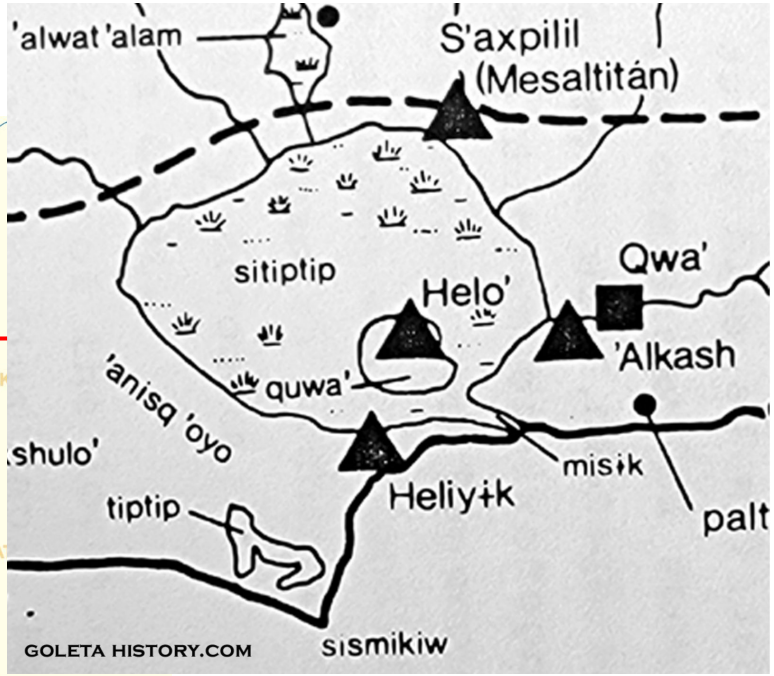
David Caldwell - founder of HEP group at UCSB
- "Current Aspects of Neutrino Physics" - 2003
- Led some of the first $0\nu\beta\beta$ experiments



Boris Kayser
Worked @ NSF 1972-2001
Pivotal role in establishing UCSB's Kavli Institute for Theoretical Physics

Chumash People

Helo' village in the Goleta Slough (SB Airport)



"Arlington Springs Man" - Santa Rosa Island. 13k yeas ago

https://goletahistory.com/the-goleta-slough/

https://www.teachchannelislands.org/tales/arlington-springs-man

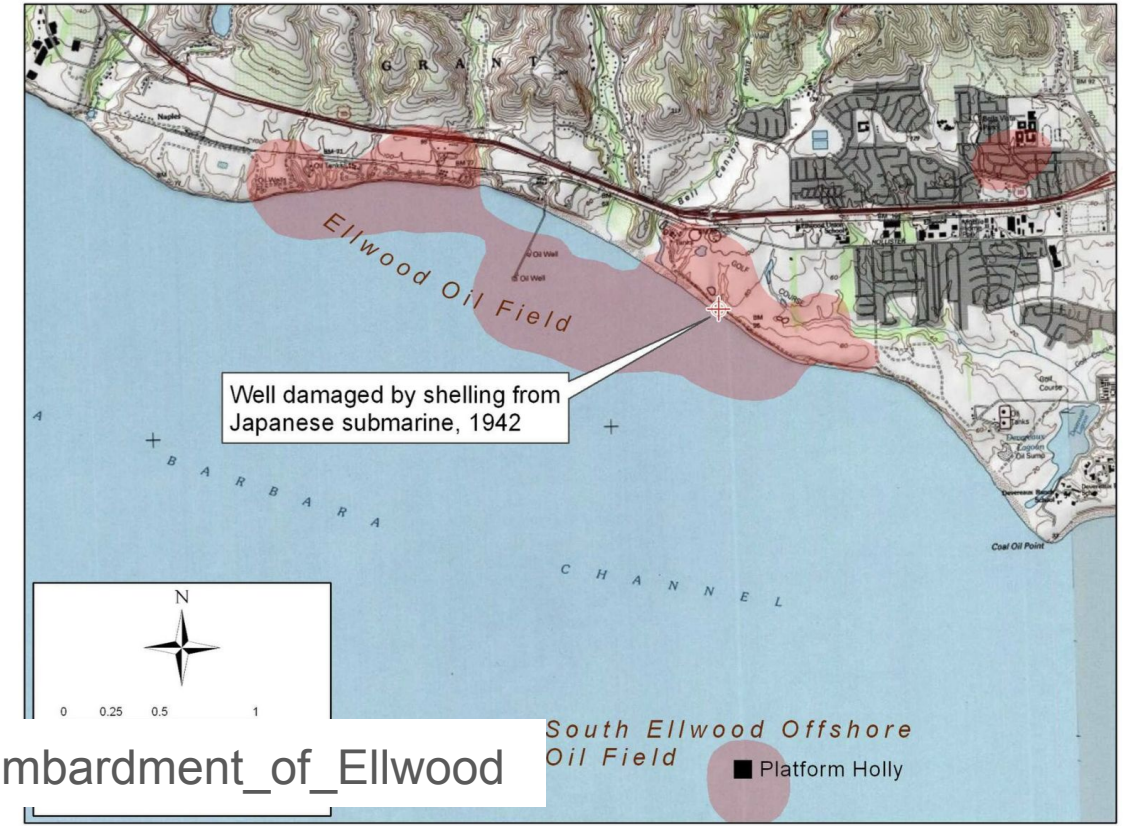
Spanish Influence

Santa Barbara Mission

1542 Cabrillo lands in Goleta
1792: Presidio Completed
1822 Spain → Mexico
1848 Mexico → USA

El Presidio →

WWII Attack - February 23rd 1942



https://en.wikipedia.org/wiki/Bombardment_of_Ellwood

April 22nd “Earth Day” - Santa Barbara Origins

Jan 28th 1969 Oil Spill

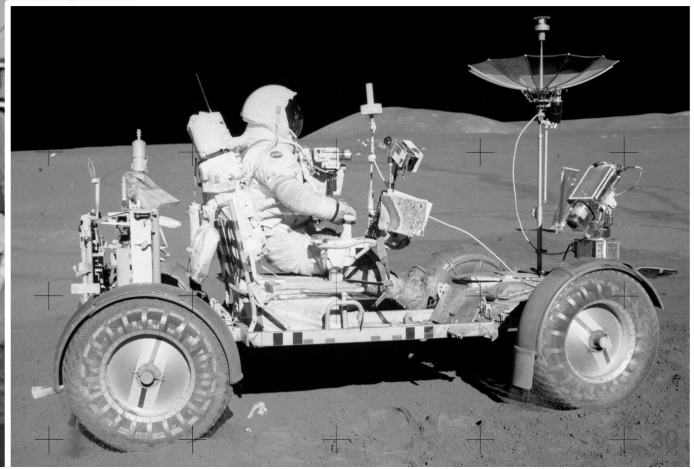
Students in Santa Barbara 1970

https://www.sbearthday.org/history-of-earth-day

Lunar Rover - Apollo 15th

Built in Goleta

Part of a long history of aerospace / military companies in the area.

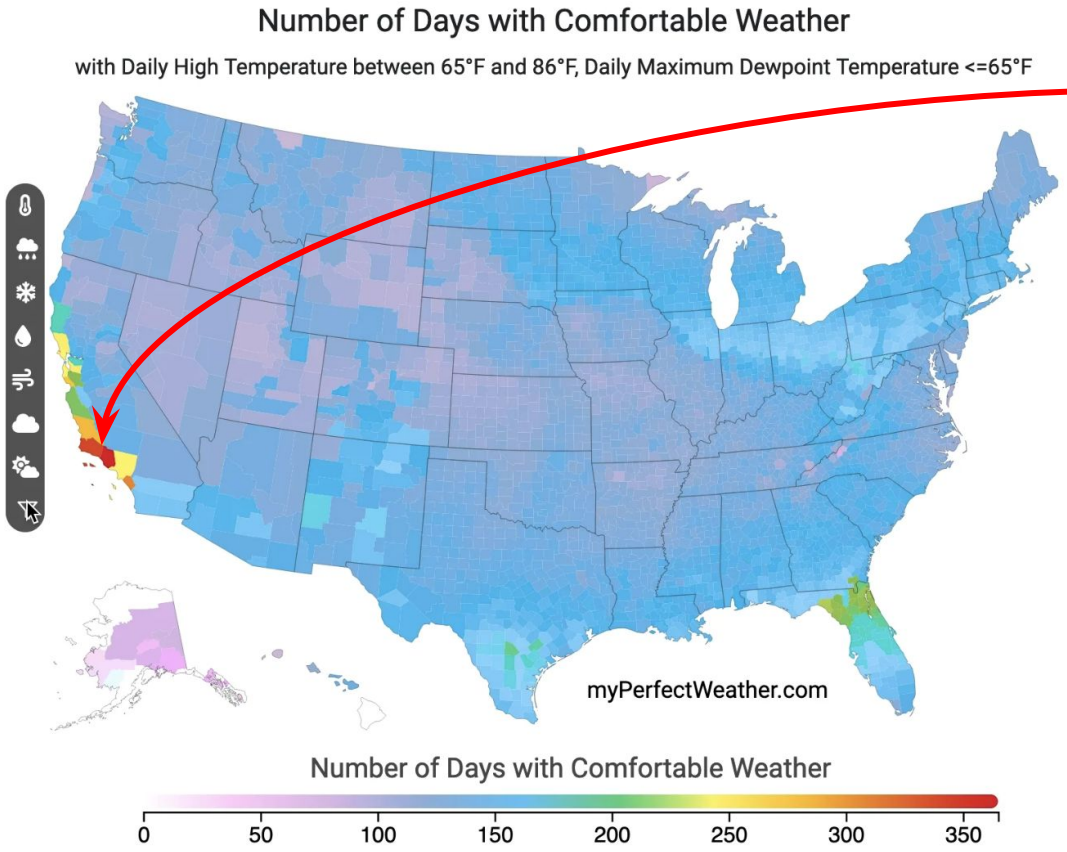


Vandenberg Space Force Base

Falcon 9 Launch
& landing (9 minutes later…)

Keep up-to-date with launch schedule: https://www.spacex.com/launches
Next launch during the poster session!

Weather



Enjoy the area

Ocean currents can be dangerous, be careful!