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Retos y oportunidades de la educación superior en un contexto binacional.



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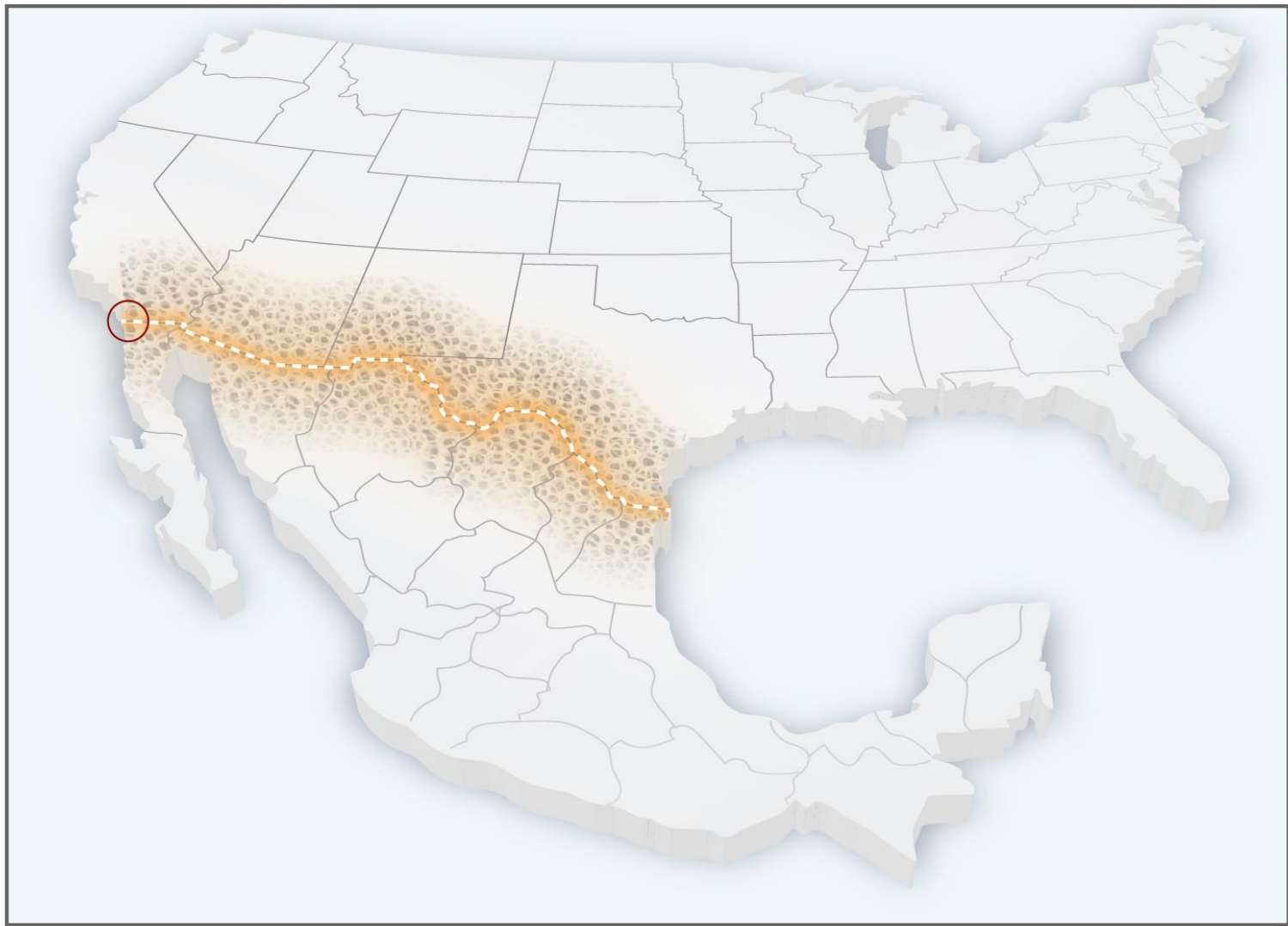
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The Students We Share

UPROOTED

Born in the United States, Learning to Live in Mexico



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SPECIAL FEATURE

G. Arellano, O. Jaime, and O.A. Graeve, "Latino Engineering Faculty in the United States," *MRS Bulletin*, **43** [2] 131-133 (2018).



diversity

IN MATERIALS SCIENCE & ENGINEERING

Latino engineering faculty in the United States

Gerardo N. Arellano, Oscar Jaime-Acuña, and Olivia A. Graeve

Feature Editor: Lynnette D. Madsen

Engineering research is the catalyst of discovery that fuels the development of innovative products and services, in turn driving economic growth and global competitiveness. This innovation thrives on the capacities, talents, and experiences of people from various diverse backgrounds; however, engineering itself has a diversity problem on many fronts.

One critical concern is the low participation of ethnic minorities in engineering research, an example being US-born Latinos. Latinos are defined as individuals of Mexican, South American (including Brazil), Central American, and

While the total number of Latino engineering faculty as of 2016 is close to 600, only 48 of the total number were born in the United States.

The root of the problem is in the extreme lack of pipeline of US-born Latinos into doctoral programs and academic careers.⁴⁻⁷ Involving Latinos in the production of scientific and engineering leadership roles within US universities should be considered a national priority, as we should cultivate reliable domestic talent. The good news is that there are opportunities at research-intensive universities to work closely with the community, government, and industry to develop scalar institutional capacities in this area. Ignoring this issue will result in a continued lack of role models for US-born Latino youth, who look for successful examples in academia among people who share



Building Compassion and Human Bridges through Research Collaborations

Olivia A. Graeve,* Jorge A. Arróyave García de la Cadena, and Aranza S. Martínez López



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ABSTRACT: Our ENLACE binational summer research program was established with the aim of encouraging the participation of high school and college students in research in the sciences and engineering, while promoting cross-border friendships between the United States and Mexico. The program unites students around science and engineering questions and concurrently engages them in a rich curriculum that promotes understanding of broader societal issues of equity, inclusion, tolerance, and social justice. Because we built our program around hope and cooperation, it is our aspiration and promise that walls and borders—all kinds of walls and borders—can be eradicated through kindness, compassion, and respect for others. ENLACE is not just a program we organize every summer, it is also a program that defines who we are as people and the kind of contribution we want to make in the world.

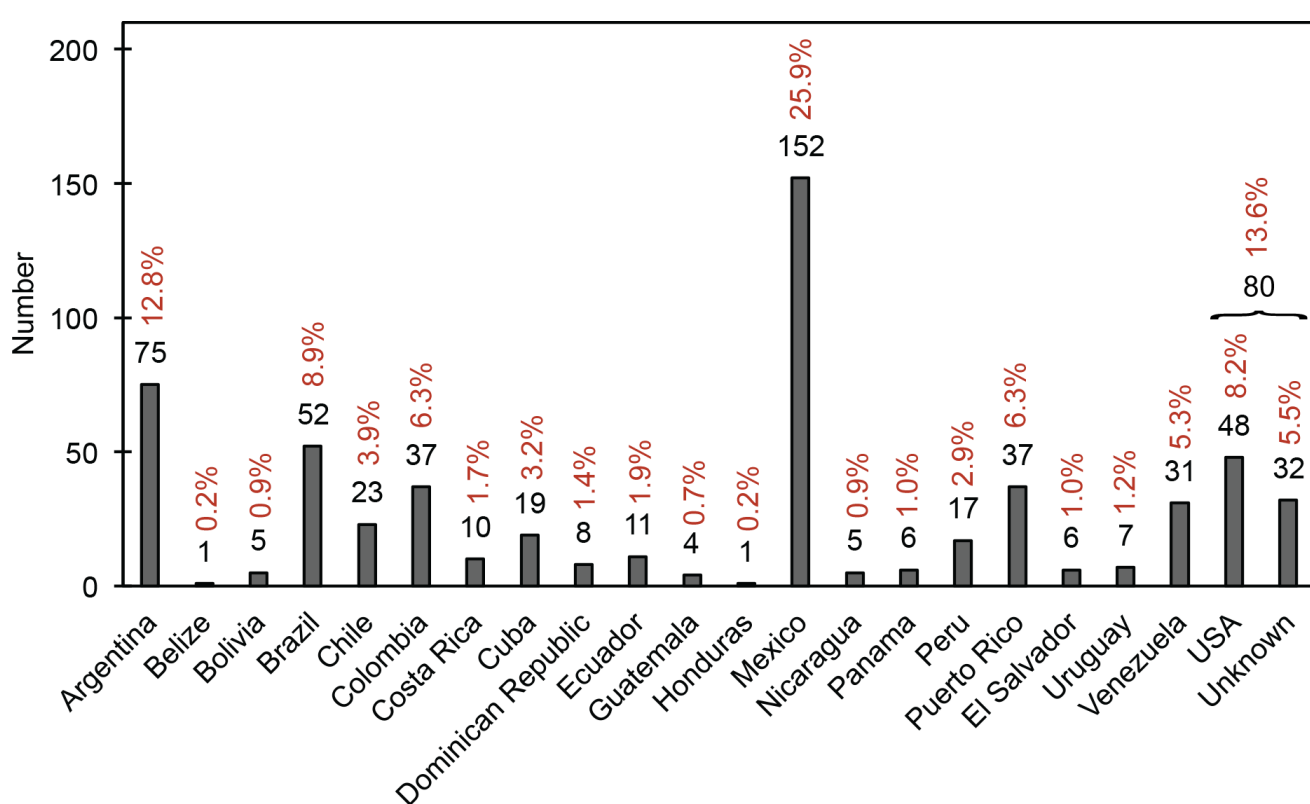
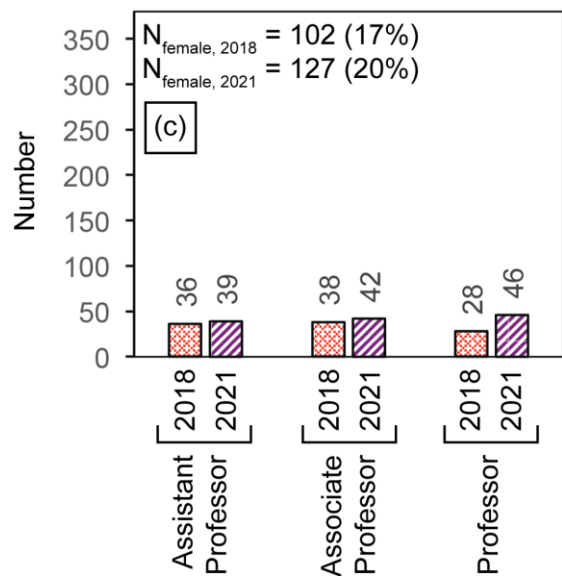
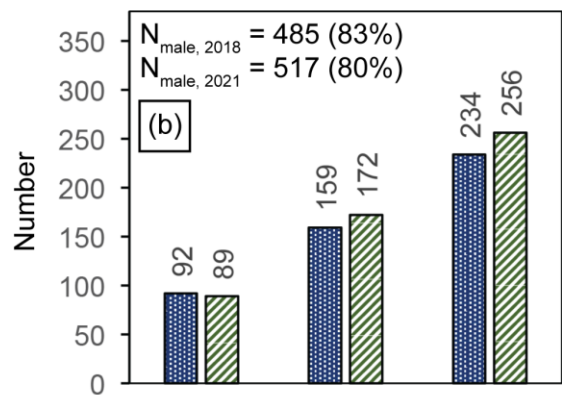
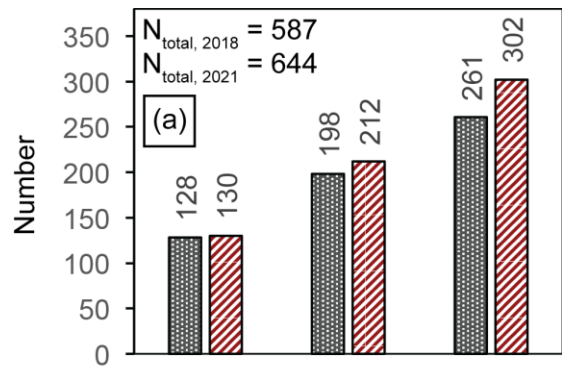


O.A. Graeve, J.A. Arróyave García de la Cadena, A.S. Martínez López, “Building compassion and human bridges through research collaborations,” *ACS Omega*, 7 [2] 1542-1546 (2022).



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Argentina: $n_{\text{men}} = 66$; $n_{\text{women}} = 9$

Bolivia: $n_{\text{men}} = 4$; $n_{\text{women}} = 1$

Chile: $n_{\text{men}} = 20$; $n_{\text{women}} = 3$

Costa Rica: $n_{\text{men}} = 8$; $n_{\text{women}} = 2$

Dominican Republic: $n_{\text{men}} = 6$; $n_{\text{women}} = 2$

Guatemala: $n_{\text{men}} = 4$; $n_{\text{women}} = 0$

Mexico: $n_{\text{men}} = 122$; $n_{\text{women}} = 30$

Panama: $n_{\text{men}} = 5$; $n_{\text{women}} = 1$

Puerto Rico: $n_{\text{men}} = 30$; $n_{\text{women}} = 7$

Uruguay: $n_{\text{men}} = 6$; $n_{\text{women}} = 1$

USA: $n_{\text{men}} = 38$; $n_{\text{women}} = 10$

Belize: $n_{\text{men}} = 1$; $n_{\text{women}} = 0$

Brazil: $n_{\text{men}} = 37$; $n_{\text{women}} = 15$

Colombia: $n_{\text{men}} = 32$; $n_{\text{women}} = 5$

Cuba: $n_{\text{men}} = 15$; $n_{\text{women}} = 4$

Ecuador: $n_{\text{men}} = 11$; $n_{\text{women}} = 0$

Honduras: $n_{\text{men}} = 1$; $n_{\text{women}} = 0$

Nicaragua: $n_{\text{men}} = 4$; $n_{\text{women}} = 1$

Peru: $n_{\text{men}} = 16$; $n_{\text{women}} = 1$

El Salvador: $n_{\text{men}} = 6$; $n_{\text{women}} = 0$

Venezuela: $n_{\text{men}} = 29$; $n_{\text{women}} = 2$

Unknown: $n_{\text{men}} = 24$; $n_{\text{women}} = 8$



Our goal is to eliminate walls and barriers, both physical and mental, through education.

Specifically, we are working to build bridges between the U.S. and Latin America.



ENLACE Summer Research Program



As a model of collaboration, students are organized in pairs (one from each side of the U.S.-Mexico border) and they work together in an assigned research laboratory at UC San Diego supporting the activities of a PhD student mentor.

During a lighthearted moment, some of the students from the ENLACE 2016 program discuss their projects. The program was highlighted in the San Diego Union-Tribune as a program of "Science without borders":

<http://www.sandiegouniontribune.com/news/border-baja-california/sdut-ucsd-science-program-seeks-to-bridge-border-2016aug04-story.html>



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ENLACE 2024

We had 202 students in the program!

The students learned how to be researchers, acquiring the skills that will take them beyond simply learning, into creating.



Enlace Summer Research Program

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Developing great science and life-long friendships



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Enlace Summer Research Program

1d · 🌐

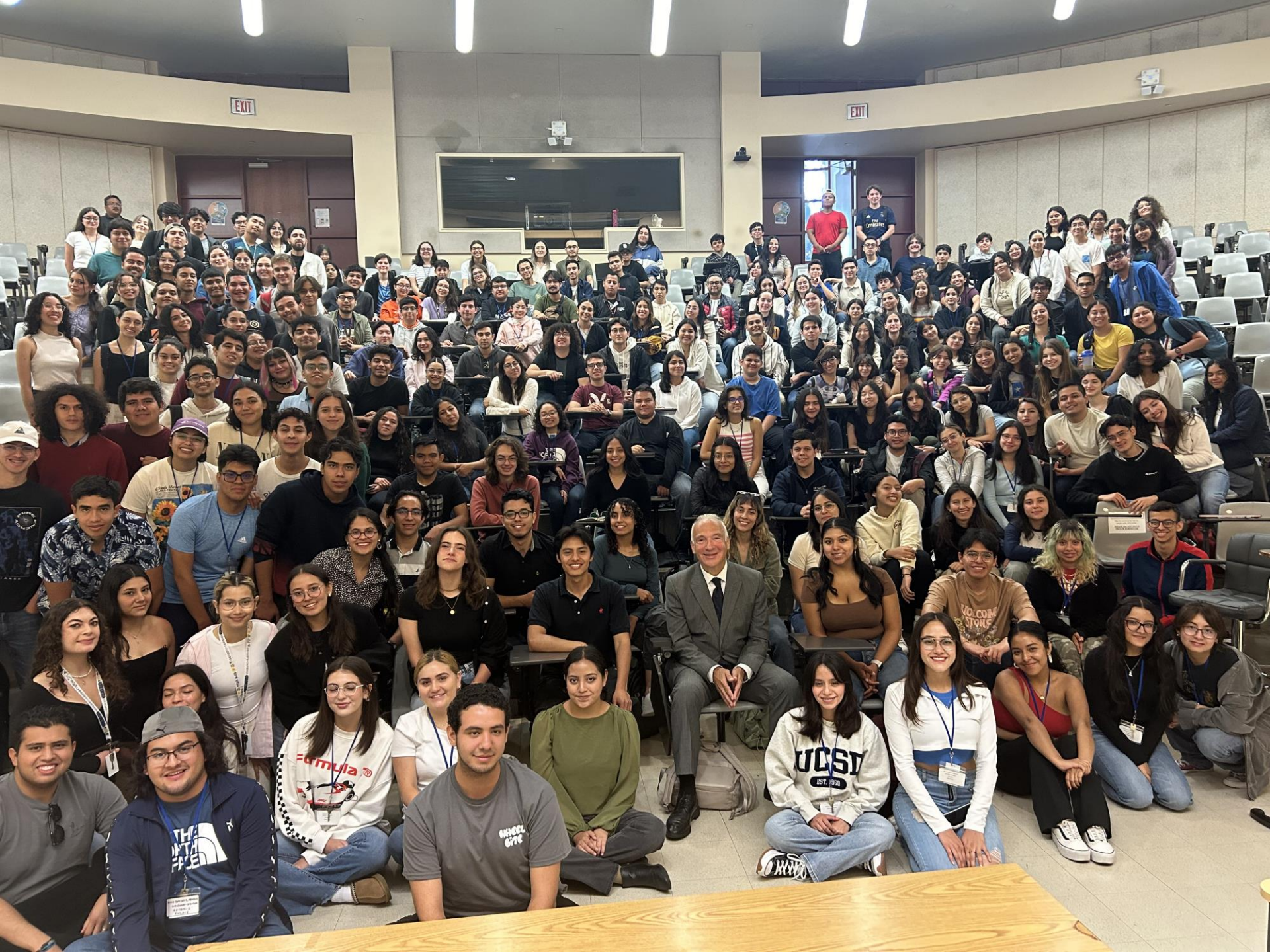
The application for ENLACE 2024 is now open!

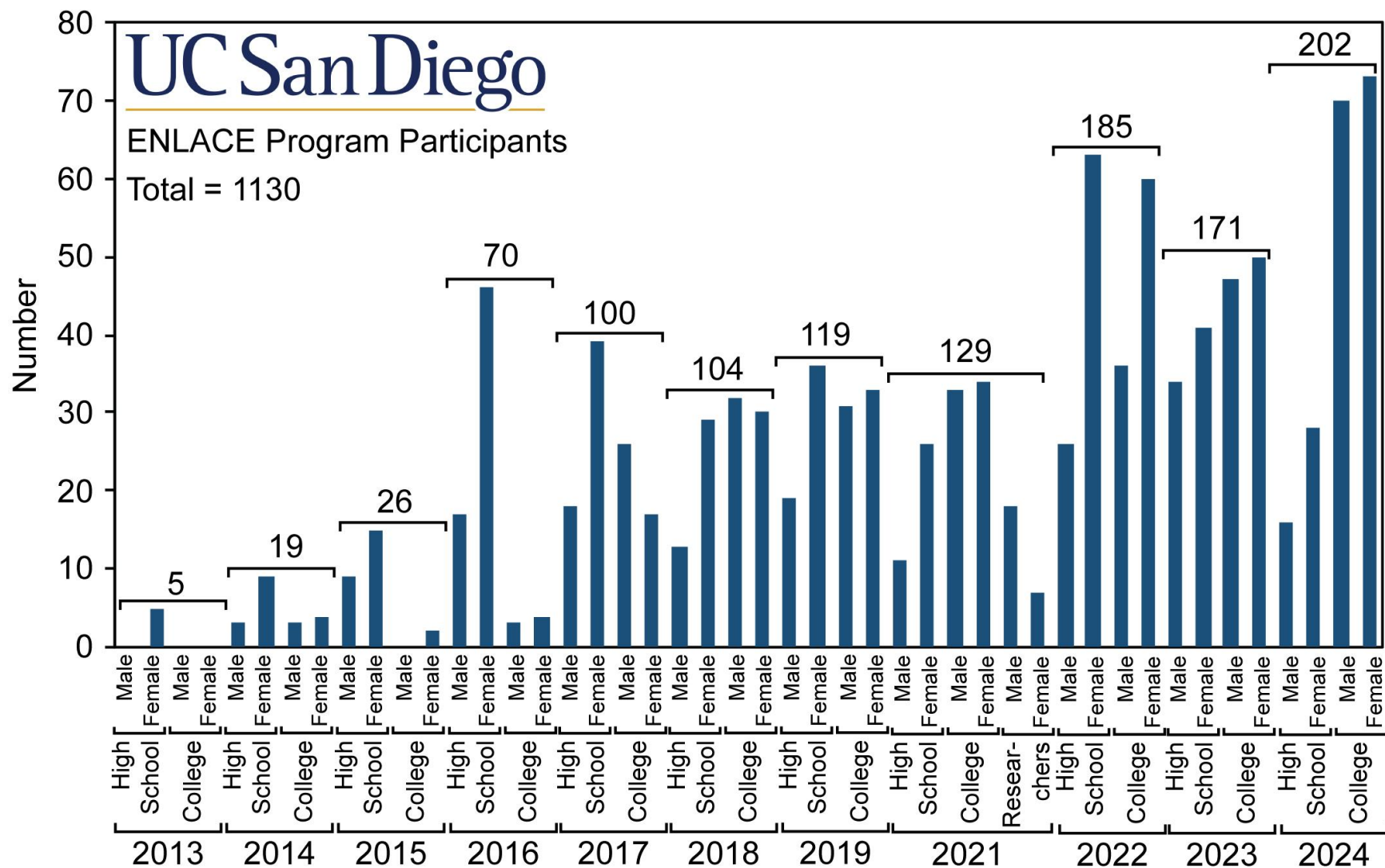
We have scheduled a series of informational sessions for interested students. There is no need to register for the informational sessions. Join us!

The application portal is found at:
<https://resilientmaterials.ucsd.edu/ENLACE>

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Lectures and Tours



ENLACE 2018 students with
Musician Nathan East

Science and Society Lectures: (every Monday at 8:00 AM)

Musician Nathan East, City Attorney Mara Elliott,
Ambassador Carlos Gonzalez, Judge Gonzalo Curiel

Tours: (Saturdays)

San Diego Zoo, Air and Space Museum,
Birch Aquarium, Midway Museum



Additional Lectures and Tours

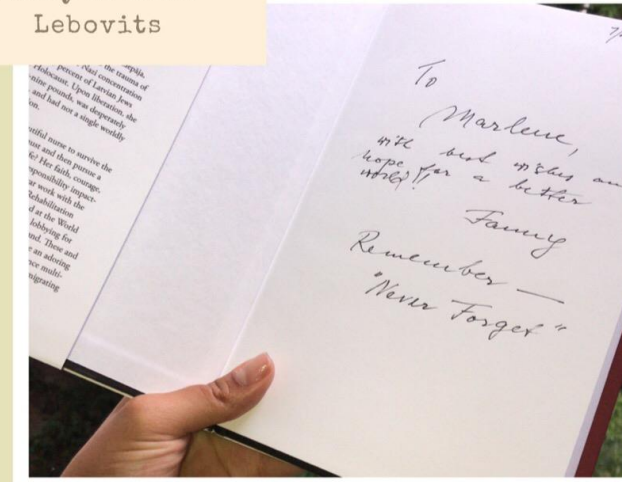
Featured Scientist Lectures:

Every Wednesday at 12:00 PM

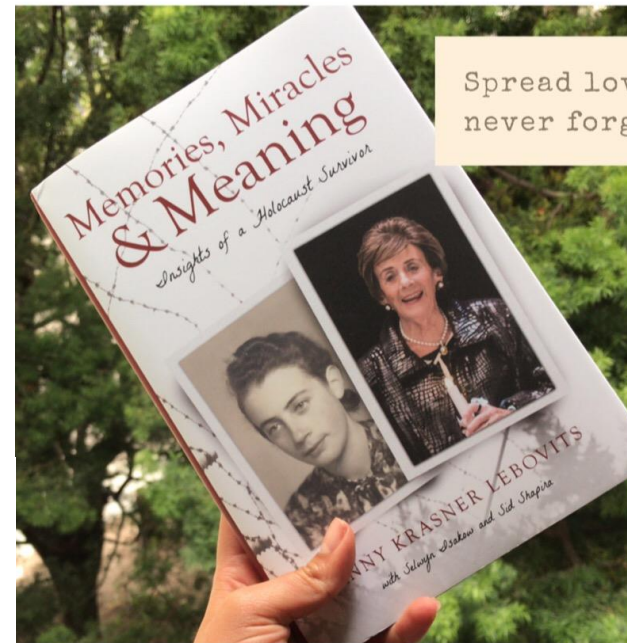
Futures Summit: A full day retreat where we will discuss future goals and career objectives.

Anti-bias Training: A discussion on acceptance and compassion. This training is in preparation for the Science & Society Lecture of a Holocaust survivor.

Fanny Krasner
Lebovits



Spread love, and
never forget. <3



College Prep and Grad School Prep



**Grad
School
Prep** (for
college
students)

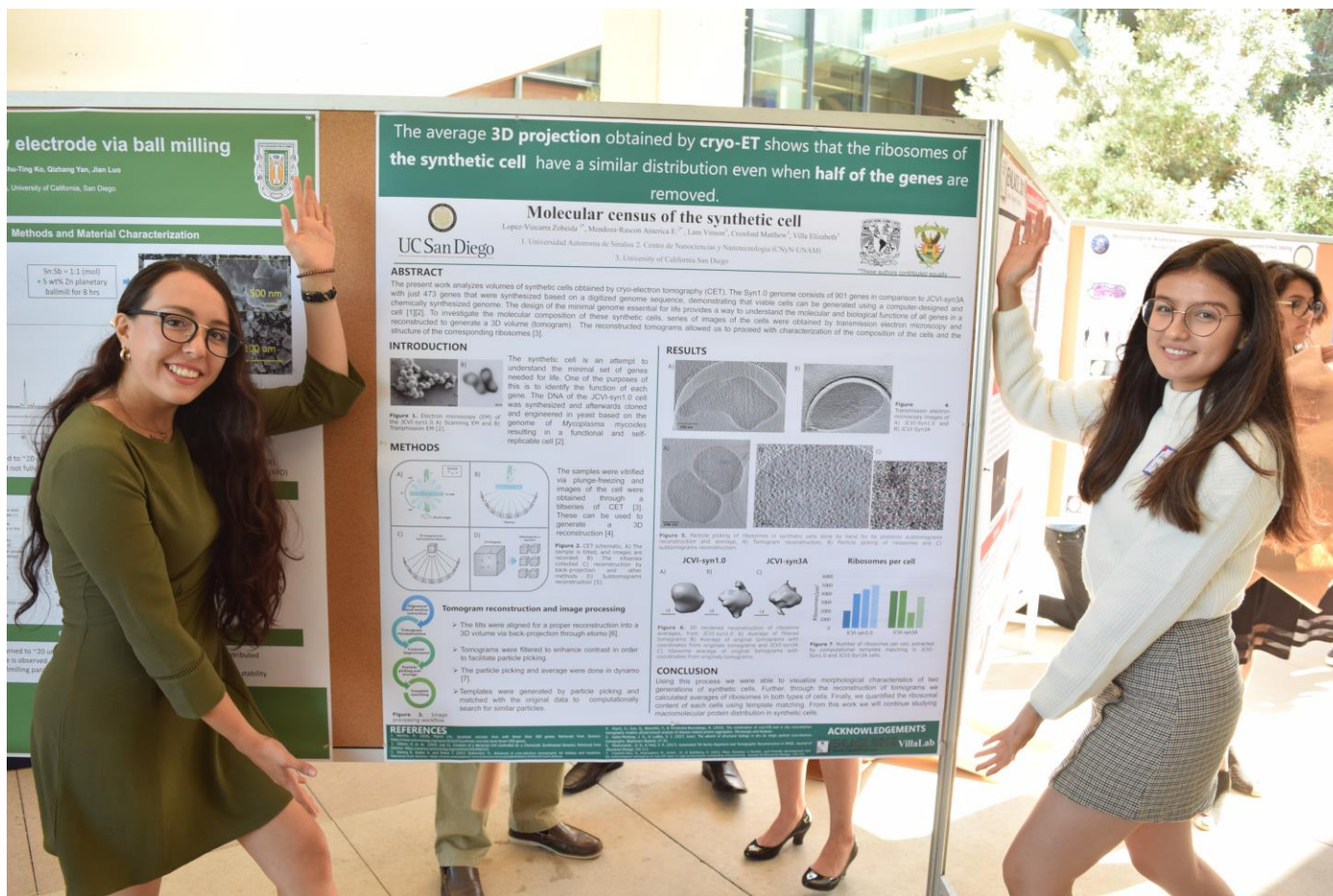
**College
Prep** (for
high school
students)



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Closing Ceremony and Symposium



Friday, August 8, 2025

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Schedule for ENLACE 2025

- **Program dates:** June 22 – August 8, 2025
- **Closing ceremony:** With talks and poster session scheduled for Friday, August 8, 2025
- **Commitment:** Program is a full-time commitment from the participants. Laboratory work is scheduled from Monday through Friday from 9:00 AM to 4:00 PM.
- **Other Activities:** Evening enrichment activities, career development workshops, and Saturday field trips.



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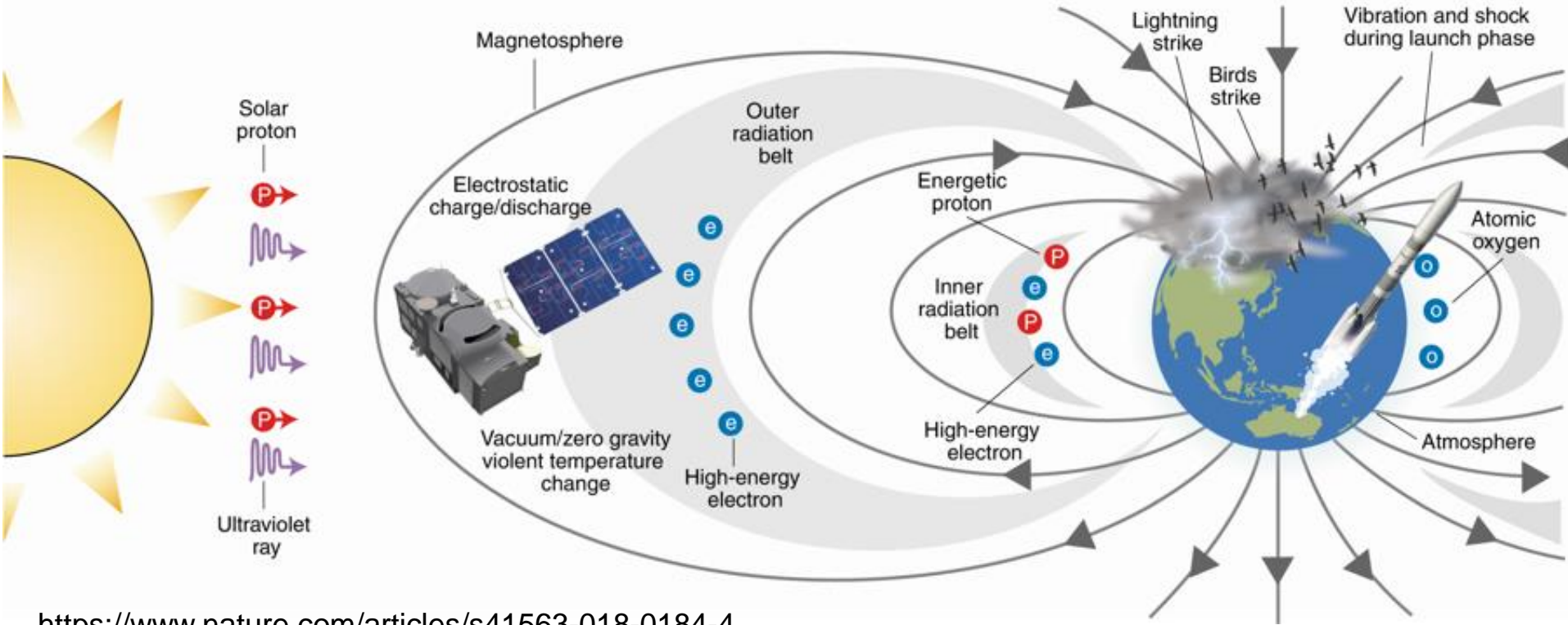


<http://resilientmaterials.ucsd.edu/ENLACE>

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In my research group, our goal is to explore the design and manufacturing of materials for applications in extreme environments.



<https://www.nature.com/articles/s41563-018-0184-4>



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Materials in Extreme Environments

Revolutionizing the way we design, test and manufacture materials and systems for extreme environments



<http://graeve.ucsd.edu>
ograeve@ucsd.edu

- ❖ **Design** materials and systems for extreme environments such as ultra-high temperatures, extreme pressures and deformations, radiation, and acidic conditions, *etc.*
- ❖ **Manufacture** materials and systems using innovative techniques.
- ❖ **Innovate** advanced technologies for:
 - ❖ Aerospace
 - ❖ Energy
 - ❖ Nuclear
 - ❖ Biomedical
 - ❖ Environmental



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