

California State University, Long Beach
Department of Physics & Astronomy

NEWSLETTER

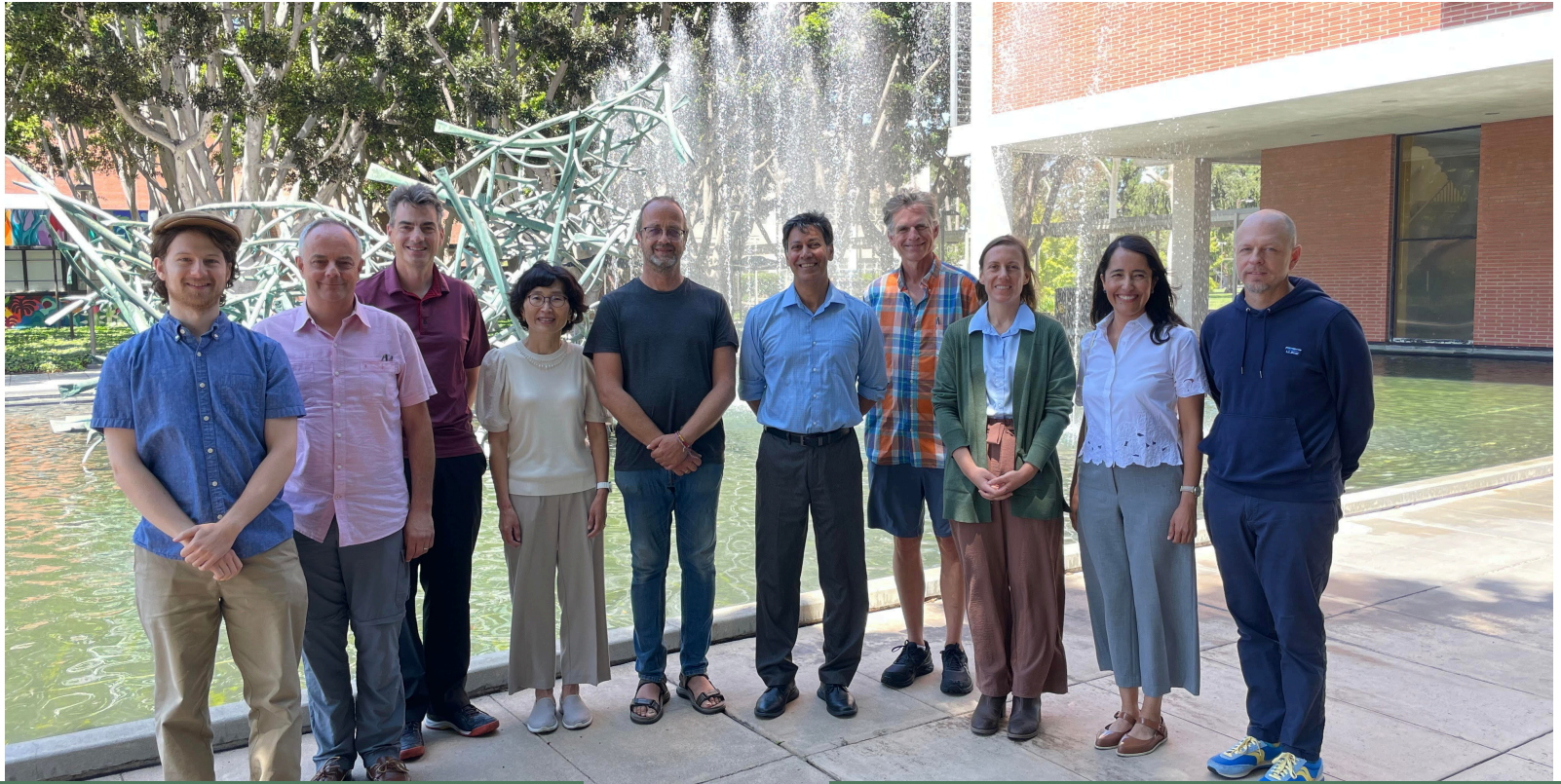
• ISSUE 40 •

2024 - 2025



WELCOME!

Our annual newsletter for alumni and friends of the department
Issue 40



Edited by:

Dr. Prashanth Jaikumar

Email:

prashanth.jaikumar@csulb.edu

Designed by:

Ciara Barnes
Yesenia Garcia

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CSULB PHYSICS GROUP



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CONTRIBUTORS

Dr. Michael Peterson, Dr. Thomas Gredig,
Dr. Claudia Ojeda-Aristizabal, Dr. Joel Zinn,
Dr. Andreas Bill, Dr. Zoltan Papp,
Dr. Jiyeong Gu, Dr. Sarah Grefe.
Dr. Subhash Rajpoot, Dr. Alex Klotz,
Dr. Thomas Klaehn, Dr. Galen Pickett

Mr. Justin Fournier (PhysTEC)
Ms. Johnae Eleby, Mr. Victor DeLa Cruz and
Mr Diego Gutierrez

The family of Dr. Edwin (Ted) Woolett

Dr. Curtis Bennett, Richard D. Green Dean,
College of Natural Sciences and Mathematics

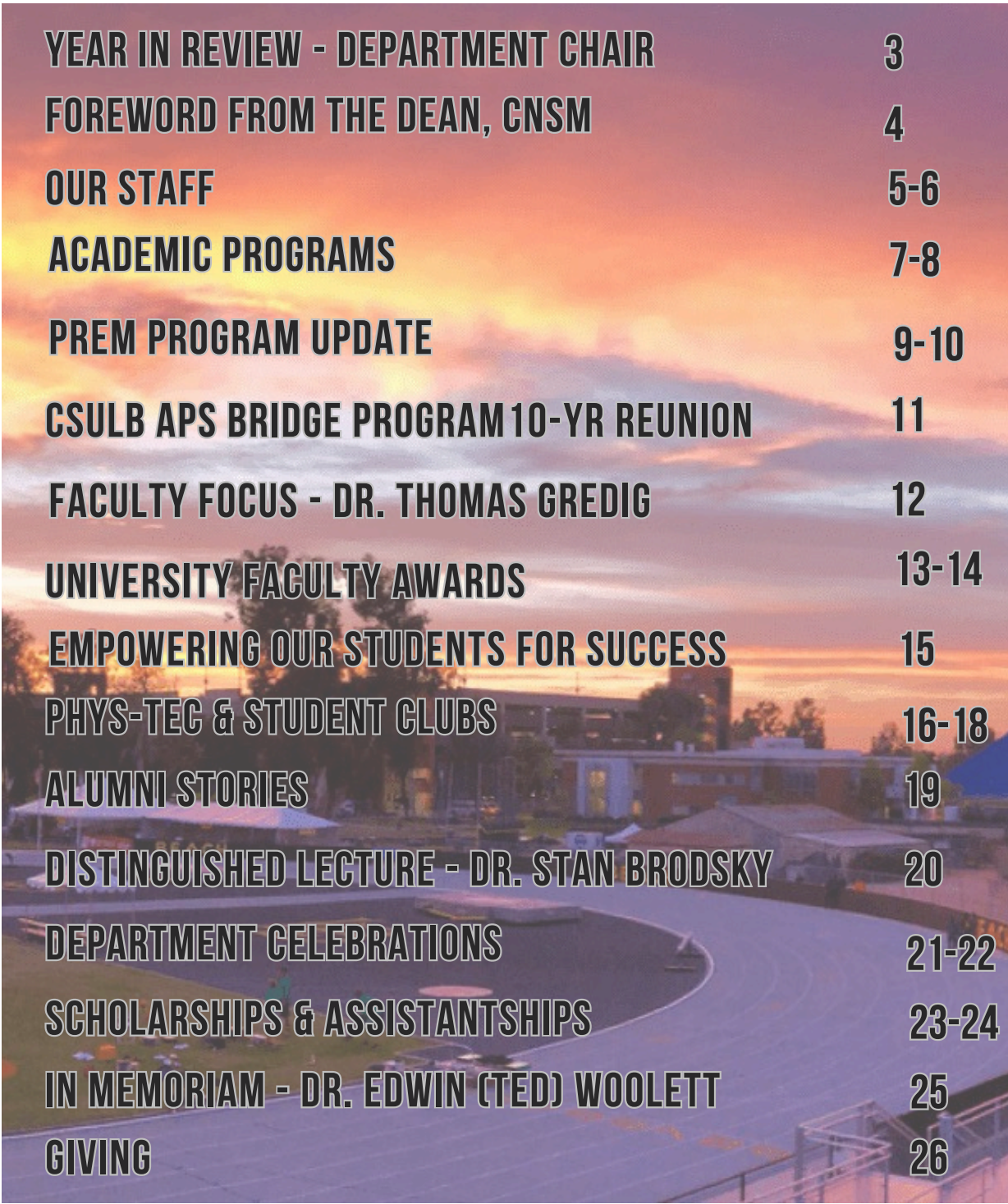
Society of Physics Students (SPS)

Women in Physics (WiP)

Astronomy Club

Condensed Matter Journal Club

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2024-2025 Year In Review

Dr. Prashanth Jaikumar

Department Chair



Dear Readers, Colleagues, Students, Staff, and Friends,

I am happy to share the annual newsletter of our Department for 2024-25 with all of you. We have been working on many fronts to advance our initiatives, both in teaching and in research. I hope you will enjoy reading about these collective efforts as well as individual achievements.

The University is a dynamic and ever-changing workplace, and one of the strengths of the department is the collaborative approach to adapt while keeping the focus on our mission as educators and researchers. Enrollment at the University has seen a dramatic increase and our lower division courses and laboratories have expanded to meet the demand. Student participation in faculty research continues to grow, as faculty grants and topical seminars draw more interest from students.

In Spring, the University's Day at the Beach outreach event included lab tours in our college and the department, and visitors showed great enthusiasm to learn about our research. We welcomed new staff in the department office and issue room and introduced some new experiments in our lower division laboratories to promote hands-on learning. Dr. Alex Klotz was awarded a sabbatical leave on the heels of his tenure, and Dr. Subhash Rajpoot took his sabbatical leave this year. Our generous donors continue to support the major initiatives of the department such as the Distinguished Physics Lecture (page 20), where we hosted Dr. Stanley Brodsky, winner of the Sakurai Prize and several other awards. A highlight of the year was the well-attended 10-year reunion of the American Physical Society (APS) Bridge Program (page 14), celebrating the success of our graduate students and the impact of faculty mentoring. We were saddened to hear about the passing of retired Physics faculty, Dr. Edwin (Ted) Woollett, who made numerous contributions to the department during his career (page 25).

Our students continued the trend of showing good progress. In 2024-25, we graduated 16 Masters & 42 Bachelors students (pages 10-11), including students who pursued Physics as an additional degree. Despite the adverse impact of declining grant funding on PhD admissions nationwide, our graduates continue to enter competitive PhD programs and pursue their dreams of a research career. Others found employment in industry (page 19) or chose to give back through teaching. Our student clubs organized many growth and wellness activities, on campus and off, to help the student community raise funds and support each other (pages 16-18).

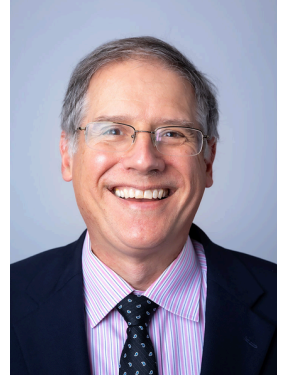
Please do read further in this newsletter, where you will find more details on the happenings and contributions that make the department a vibrant and diverse community.

I wish you all a very happy holiday season for Winter 2025!

Foreword

Dr. Curtis Bennett
Richard D. Green Dean

**College of Natural Sciences
and Mathematics**



Dear Alumni, Faculty, and Students,

I'm thrilled to welcome you to our Physics department's annual newsletter. As usual, we've had an exciting year, and I hope you enjoy reading about our most recent accomplishments.

When I reflect on another year of this department, the word *unstoppable* comes to mind. Between numerous faculty awards, student publications, and groundbreaking research across the department, Physics continues to make a name for itself at our University. One of the major forces of success in this department is its ability to evolve; no matter what challenges come before them – and the last several years have certainly brought unprecedented challenges – this department consistently shows up, confronts issues head-on, and always looks for the solution that benefits our students.

But perhaps the greatest strength of this department is its dedication to fostering a dynamic and supportive physics community, on our campus and beyond. Our students regularly participate in conferences nationwide and network with physicists from a variety of universities. It's not just academics though, as the department maintains a strong focus on outreach to our greater Long Beach community – inviting people to stargaze with us at Nights at the Observatory and bringing the wonders of astronomy to high school students throughout the state with our mobile planetarium.

I'm proud of the community our Physics department continues to build and strengthen, and with that, I know our students will go on to impact – and improve – the world around us.

Dr. Curtis Bennett
Richard D. Green Dean
College of Natural Sciences and Mathematics





OUR STAFF

Joey Grant

Department Coordinator



Hello, I am Joey Grant. I have been the Department Coordinator for the Physics and Astronomy department since 2023 but have worked on campus since 2018. I have all kinds of hobbies, but my new favorite hobby is stand up paddle boarding at the bay. My other hobbies include cooking, gardening, crafting and spending time with my family and friends. I have two adorable grandchildren who live on the east coast that I get to Facetime all the time. I feel very lucky to be able to work here on campus and I really enjoy working with all the students and faculty in this department.

Yesenia Garcia

Administrative Assistant (February 2025-present)



Hola! Joining Team Physics has been one of the best things to happen to me in a long time. I'm grateful to be here and excited to grow our social media presence and outreach. By the way—do you follow us on Instagram? Find us @CSULBPhysics. I'm a proud LBSU alum with a B.S. in public health. My background is in crisis mental health, serving diverse communities including survivors, low-income populations, college health, and transitional-aged youth. Though new to the Department of Physics and Astronomy, I've loved getting to know our community—from trailblazing families to students' incredible resilience—and look forward to many more semesters here. When I'm not at work, I'm at my other jobs teaching tiny humans Spanish and working at a holistic health center. Powered by iced coffee, I still make time to travel with my partner, family, and friends. My favorite destination so far is Dubai, and my dream destination is Lake Como. I love live music, trying new coffee shops, sports, hot yoga, pilates, and most of all, my babygirl, Virgo (my kitty).

Rachel Robnett

Administrative Assistant (April 2024-January 2025)



Rachel Robnett graduated from CSULB in May 2023 as a Fine Arts (photography) major and a Forensic Science minor. She worked as our administrative assistant for 9 months before taking up a position as assistant to the director of the criminal justice program on campus. Her goal is to become a crime scene investigator or forensic photographer. Outside of work, she loves being outdoors with her camera, exploring nature and traveling. We thank Rachel for her service to the department and wish her a bright future!

Jay Conlon

Instructional Support Tech

Hi, my name is Jay Conlon. I began working at CSULB in October of 2017. My grandfather helped me use physics to win the Pinewood Derby as a boy scout and I've loved it ever since. I went to UC Merced for my undergrad, and did my Graduate studies here at CSULB. When I'm off the clock, I'm an avid gamer and all-around nerd, who's grateful to being employed doing something I love.



Henry Sundland

Instructional Support Tech

Hello, I'm Henry. I first joined the CSULB physics community as a Master's student in 2021. I became interested in physics during undergrad, where I was originally a philosophy and pure math major. I switched to physics and graduated with my BS in physics from UCLA in 2021. After graduating with my master's, I was contacted by Dr. Jaikumar to work as an Instructional Support Tech, which I happily accepted. Outside of work, I enjoy kickboxing, judo, grappling, weightlifting, playing the guitar, reading, and playing video games.



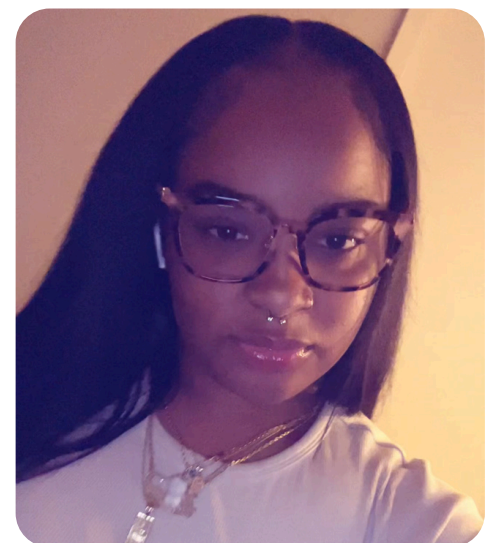
Ciara Barnes

Student Assistant

Hi, I'm Ciara! I'm currently a third year student here at California State University, Long Beach, pursuing my B.S. in Public Health with a minor in Global Studies. I've worked as a federal work-study student assistant in the Physics and Astronomy Department since Fall 2022 and continue to enjoy being part of such a supportive and welcoming community.

This past year, I had the opportunity to attend a public health conference, which strengthened my passion for the field and reminded me how encouraging everyone in this department has been throughout my journey. I'll be graduating in Spring 2026 and have since joined BeachEDGE as I begin working toward my B.S./MPH pathway.

Outside of school and work, I love to paint, explore other arts, hiking, and spend time with my two dogs, Nike and Hershey. I also picked up doing puzzles and continue running my small business creating flower arrangements and custom pieces.



Academic Programs

UNDERGRADUATE ADVISOR: DR. THOMAS GREDIG

The Physics and Astronomy undergraduate program at CSULB continues to rank among the strongest in the CSU system on multiple measures of student success and engagement. Both Physics BA and BS programs were established in 1953 at CSULB as foundational programs to the University.

As of Fall 2025, the department is proud to have 146 physics juniors and seniors enrolled. Of these, approximately 55 students are pursuing double majors, reflecting the program's flexibility and the wide applicability of a physics education across disciplines.

This year, the department introduced an exciting new initiative — the 5-Year BeachEDGE Program — designed to give motivated students an accelerated pathway into research and graduate study. Through this program, students begin independent research during their junior year, which develops into a master's thesis by the end of their fifth year. Participants may apply up to 12 units of graduate coursework taken during their senior and junior years toward the M.S. degree.

Our students continue to achieve remarkable success after graduation. From our most recent spring cohort, for example, one graduate joined SpaceX as a test engineer, while another began graduate studies in physics at Louisiana State University. These accomplishments reflect the strong preparation and research opportunities offered by the CSULB Physics and Astronomy program.

Each semester, the department supports roughly seven undergraduate students in independent research projects, many of whom go on to present their work at the CNSM Research Symposium or in a presentation of the end-of-semester colloquium. In Fall 2025, the department also launched, for the first time, PHYS 494 – Seminar in Undergraduate Research, a new 1-unit course led by Dr. Michael Peterson, designed to help research-active students share progress and build professional communication skills.

In addition, several of our undergraduate researchers participated in the American Physical Society Global Summit, held in Santa Ana in March 2025, where they connected with physicists and educators from around the world. In the summer, several undergraduate students participated in meaningful internships through the NSF REU program. As an example, a student visited the University of Colorado, Boulder in summer 2025 and did research on topological knot solitons in the group of Smalyukh.

With a combination of rigorous coursework, new course development, and early research opportunities, the CSULB Physics and Astronomy program continues to set a high standard for undergraduate education and research reflected in the high physics graduation numbers.



Dr. Gredig (right) and Dr. Jaikumar (left) with some of our majors during the annual Fall mixer.

Academic Programs

GRADUATE ADVISOR: DR. JIYEONG GU

Our Graduate Program, already one of the top Master's programs in the Nation, continues to work well. Students complete coursework in fundamental Physics subjects and are trained in applied, theoretical and computational research, leading to a master's thesis or project.

Highlights of our program in the year 2024-25 include graduation of 16 students with Master's degrees, 30% of whom entered top PhD programs around the nation, such as the Yale University, University of California Berkeley, University of California Irvine, University of California Riverside, and New Mexico State University. Also, our MS alumni become physics teachers at local high schools where they inspire young students to pursue their interest in physics at CSUs or at local community colleges. Some students finished their Professional MS degree while they have been continuously working in the industry full time. We are happy to see that our Master's program is a true value addition to career prospects and earnings to our students, as data from the American Institute of Physics shows. In Fall 24 and Spring 25, we welcomed a cohort of 18 new graduate students who have since joined the research groups of our faculty.

APS Global Summit 2025 was held in Anaheim, CA in March 2025 and 7 faculty members and 46 students (undergraduate and graduate students) attended the meeting. We also had quite a few alumni from our MS program attending APS Global Summit including the following: Luke Park who finished his MS degree in summer 2023 and currently works as Quantum Program Manager in Korean-US Quantum Technology Cooperation Center, Fanuel Mendez who finished his MS degree in summer 2023 and currently in PhD program in Indiana University Bloomington, and Prof. Thomas Baker, Canada Research Chair in Quantum Computing for Modelling of Molecules and Materials at the University of Victoria. On the last day of APS Global Summit 2025, we had 10-year celebration of the APS bridge program at CSULB (see page 14), and our MS graduate students had a great time with the past and current Bridge students.



Physics students, alumni and faculty at the APS Global Summit in Anaheim, March 2025



Graduate students working together in the Physics conference room which also doubles as a study space and official meeting venue

There is great news regarding some changes in Policy on Master's Degrees & Policy on Master's Level Culminating Activities that becomes effective in Fall 2025. All these changes will help our students go through the program rather smoothly with less procedural obstacles.

My experience as a graduate advisor so far has been enriched by helping our MS graduate students have the best experience in our program. Following the mission in our department, I try to advise each student as best as I can based on his/her career

ambitions, life situations and personality, all of which can evolve during their time here. I really appreciate our outstanding administrative staff, Joey Grant and Yesenia Garcia, as well as former staff in the past years, Korin Coombs, Lisa Dignadice, John Shaw, Sergio Mendoza, Bianca Lopez Mendez, Rachel Robnett, & Amber Robertson. Their care and concern for the well-being of our graduate students is an invaluable asset to the Department and to the graduate program.

PREM

PARTNERSHIP FOR RESEARCH AND EDUCATION IN MATERIALS



PREM CSULB-OSU Symposium November 2024. Seated 4th from left is PREM Director Dr. Michael Peterson. Seated 3rd from right is Dr. Jiyeong Gu, Co-Director of PREM. Standing 6th from right is Dr. Ryan Blair of the math department, co-director of PREM.

Our PREM grant, funded by NSF's Division of Materials Research, supports a long-term collaboration between members of the Physics & Astronomy, Chemistry, and Mathematics departments at CSULB and The Ohio State University's Center for Emergent Materials MRSEC, strengthening our materials research and providing outstanding training opportunities for students. Now entering Year 2 of what was originally a 6-year award, the collaboration continues to gain momentum and make an impact across research, training, and professional development.

This past year, PREM awarded \$32,000 in scholarships, with plans to match that level again in the coming year. We also added two new sections of PHYS 594/494, which now serve as a weekly meeting space for PREM students. These sessions feature impromptu and formal research presentations, as well as professional development on topics including applying to PhD programs, preparing for careers in the tech industry, navigating external funding, and presenting research effectively at conferences. The class also provides a regular venue for CSULB-OSU research updates, with OSU collaborators joining via Zoom. We plan to continue these courses in the spring semester.

Our program has also grown in capacity with the addition of Anayantz Hernandez, whose organizational leadership, insight, and energy have already made a tremendous difference, improving the PREM experience for both students and faculty.

This year included several notable achievements. MS student Alex Goytia spent approximately six weeks at OSU working with Profs. Johnston-Halperin and Gredig, gaining hands-on experience in advanced experimental techniques. Undergraduate Jason Spada completed an REU at OSU, continuing our strong track record of placing students in competitive summer programs.



Physics MS student Alexander Goytia presents a PREM poster.

PREM

PARTNERSHIP FOR RESEARCH AND EDUCATION IN MATERIALS



PREM students Eric Corona and Alex Goytia both earned SPS Poster Prizes at the APS Far West Section meeting at UC Santa Cruz this October. Chemistry student Ngoc Pham, working with Prof. Derakhshan, published a paper in Chemical Science on synthesizing magnetic nanowires.

Prof. Ojeda-Aristizabal's group, in collaboration with OSU's Prof. Goldberger, submitted three manuscripts studying nanoscale phenomena in layered and two-dimensional materials using a variety of techniques. Finally, PREM mathematics student Jonathan Strange, together with Profs. Blair and Klotz, submitted a manuscript on topological linking and knot theory. These highlights reflect the depth of student engagement and the strength of the CSULB–OSU collaborations.

We are now preparing for our 2nd Annual CSULB–OSU PREM Symposium this spring. To date, PREM has supported more than 30 students and 9 faculty members, facilitated numerous REU placements at OSU, helped students present at APS meetings, and continues to build a collaborative and inclusive research culture.



Left: Physics undergraduate and PREM student Movindu Dissanayake presents a talk. Right: Dr. Alex Klotz gives an overview of research areas in Biophysics and other overlapping fields, as relevant to PREM.

APS BRIDGE PROGRAM AT CSULB

- 10 YEAR ANNIVERSARY -



Graduates of the CSULB MS Physics program who were supported in one way or another by the APS Bridge program gathered for the 10-year reunion, sharing their stories and the impact of the program on their professional progress. They were joined by the faculty, current MS students, and program leaders from the APS and scientists from Google, which supports the program since 2020.

The American Physical Society's (APS) Bridge Program exists at CSULB since 2014 with goals to welcome, train, and launch talented students into Ph.D. studies in physics. Faculty members Chuhee Kwon (*retd.*), Galen Pickett and Andreas Bill implemented the program in the department, and it continues today with the participation of other faculty and financial support from Google. This support is mainly through fellowships and assistantships to graduate students with strong potential and determination who may not have had the opportunities needed to gain entry into doctoral programs.

In March 2025, just after the APS Global Summit in Anaheim, the department hosted a reunion of graduates since the origin of the program 10 years ago. Following the initial success of the program, Google Inc. reached out to then department chair, Andreas Bill, and forged a partnership that has continued the mission of providing the preparation, support, and research experience needed to transition successfully into a Ph.D. The success of the program is evident from the fact that CSULB's Department of Physics and Astronomy remains one of only five nationally funded APS Bridge Sites. The event showcased how bridge students, former and present, are fully integrated into our department community. Everyone enjoyed getting to meet up once again and were very impressed with where the Bridge program students have ended up after the program. These students also gave some really excellent presentations about their paths since the program, showing a lot of appreciation for what the program gave them and a clear desire to help the next generation of students coming up behind them.

We were joined by Google scientists Dr. Helge Gehring and Dr. Aaroz Szasz, and APS Bridge Program director M. Wittmann. Besides short talks by bridge program alumni, the program featured a presentation on the evolution of the program since its inception, a panel discussion of alumni and current students, and hearty conversations over a sumptuous dinner! Through dedicated faculty mentors, individualized guidance, and extensive research opportunities, including projects that lead to peer-reviewed publications, we are ensuring each student in the Bridge program is able to thrive.

FACULTY FOCUS:

THOMAS GREDIG

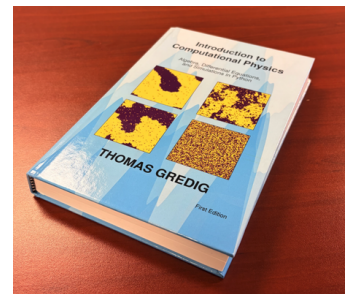
*Redesign of PHYS 360 -
Introduction to
Computational Physics*



Dr. Thomas Gredig joined the department in 2007, and has made many contributions to curricular development in the sciences as well as his field of research during his career at CSULB. Thomas has been lauded for his innovative teaching and data-based approach to implementing pedagogical improvements leading to increased student success. His research centers on understanding nanoscale materials through advanced experimental techniques. His laboratory conducts extensive measurements using atomic force microscopy (AFM) equipment purchased with an NSF MRI grant, and a range of complementary tools, generating large datasets that require careful analysis for reproducibility and transparency in collaborative research. Recent published work with the Tian group (faculty in Chemistry and Biochemistry) on nanocrystals exemplifies these efforts. To support such data-intensive projects, Thomas introduced modern, reproducible workflows based on Quarto, an open-source scientific publishing system that produces high-quality reports across formats. Students in the Gredig research group learn to import data with R, process it with Python, and create polished Quarto reports and presentations.

His ability to infuse modern computational elements in his research has led him quite naturally to make an impact in shaping our only undergraduate computational course. He recently redesigned PHYS 360 – *Introduction to Computational Physics*, a course that has evolved significantly over the past three decades. Formerly known as *Computers in Physics* and later *Physics With Symbolic Algebra Software*, the course originally introduced students to symbolic algebra tools such as Maxima, with materials developed by a former faculty member, Dr. Edwin (Ted) Woollett. Over time, the course transitioned through Mathematica before ultimately moving to a fully open-source Python platform. Thomas unified the curriculum around Python and JupyterHub to integrate scientific computing tasks for both symbolic and numerical uses by physicists. The goals of PHYS 360 remain rooted in core computational literacy.

By the end of the semester, students develop some proficiency in Python programming and elementary numerical analysis, including root finding, matrix diagonalization, solving transcendental equations, data visualization, and implementing Runge-Kutta methods for ordinary differential equations. Classroom problems range from modeling the driven harmonic oscillator to analyzing percolation theory. The course culminates in a student-designed final project, with topics including gravitational fields from fractal geometries, water reservoir evaporation models, Hodgkin-Huxley neuron simulations, chaotic pendula, and optimization of volleyball serves. These projects highlight the creativity and breadth of computational approaches inspired by the course. To support the redesign, Thomas authored and published the hardcover textbook (picture on right) *Introduction to Computational Physics*, along with structured worksheets and more than 170 guided exercises. The text aligns with AAPT recommendations that all undergraduate physics majors develop computational skills as a core component of their training. This work showcases how the department's research-driven and grant funded projects directly influence curricular development and enrich the training of our students.



Computational Physics textbook written and published by Thomas Gredig

UNIVERSITY AWARDS



OUTSTANDING PROFESSOR ANDREAS BILL

We are delighted to announce that in AY 2024/25, Dr. Andreas Bill received the University Achievement Award in the Outstanding Professor category, honoring his exceptional contributions to research, teaching, and academic leadership.

Andreas earned his Ph.D. (Dr. rer. nat.) in Theoretical Physics summa cum laude from the University of Stuttgart, Germany, following a diploma in Physics at the Swiss Federal Institute of Technology, Lausanne (EPFL).

His academic career has taken him to world-class institutions, including postdoctoral research at Lawrence Berkeley National Laboratory and research positions at the Max Planck Institute for Physics of Complex Systems in Dresden, and the Paul Scherrer Institute in Switzerland. He joined the Department of Physics & Astronomy at California State University, Long Beach (CSULB) in 2005. He spent his sabbatical years as visiting professor at the Instituto de Ciencia de Materiales de Madrid (ICMM), Spain, and the Laboratoire de Physique des Solides (LPS), Université Paris-Saclay, France.

An expert in theoretical condensed matter physics, Andreas has secured multiple research grants from the National Science Foundation (NSF) and other agencies. He currently is a senior scientist of the CSULB - Ohio State University Partnership for Research and Education in Materials (PREM). His research in superconductivity, magnetism, and materials science has produced nearly 60 publications, including several with CSULB students.

Andreas is also dedicated to service and mentorship; he was the graduate advisor and associate chair of the department from 2011 to 2016 and chaired the department from 2016 to 2022. He has been a central leader in the American Physical Society (APS) Bridge Program, working to expand graduate opportunities for students from all backgrounds in physics.

He was also on the executive committee, then on the chair line of the Far West Section of the APS for a total of eight years. He played a pivotal role in redesigning CSULB's master's program and has mentored dozens of students, supervising 17 master's theses, 2 honors theses, 16 undergraduate projects, and numerous summer and semester research projects. His former mentees now hold positions as assistant professors at R1 universities, as research scientists at U.S. national laboratories, in industry and as teachers.

Congratulations to Andreas on this well-deserved honor!



Dr. Andreas Bill (2nd from left) with colleagues Dr. Joel Zinn, Dr. Michael Peterson and Dr. Thomas Gredig at the University Awards Celebration at the Pointe, inside Walter Pyramid.

PRESIDENT'S AWARD FOR OUTSTANDING FACULTY ACHIEVEMENT

GALEN T. PICKETT



Dr. Galen T. Pickett

We are proud to share that in AY 2024/25, Dr. Galen Pickett received the university's President's Award for Outstanding Faculty Achievement, recognizing his sustained efforts to improve access, retention, and outcomes in our physics programs.

Since joining the Department of Physics and Astronomy in 1999, Dr. Pickett has been a driving force in shaping both the growth and the character of the program. As Undergraduate Advisor for 14 years, he supported students through a period of significant enrollment expansion while leading reforms that transformed how physics is taught at the introductory level. His initiatives, including course redesign, the development of peer-tutoring and pedagogy training, and the adoption of collaborative learning models have helped students succeed in gateway courses, and expanded participation in the major.

Dr. Pickett was also instrumental in creating the B.A. in physics, which now enrolls nearly half of our majors and provides new pathways for students interested in teaching careers or entering the STEM workforce directly. At the same time, he has sustained an active research profile, publishing 49 peer-reviewed papers on topics ranging from the physics of self-organization in complex systems to the applications of origami in science and engineering, along with 17 creative nonfiction and fiction works.

Beyond campus, Dr. Pickett contributes nationally as a member of the leadership team of the APS Bridge Program, the longest-running and most successful initiative of the Inclusive Graduate Education Network. His impact is also visible in our own classrooms, where upper-division enrollments have grown from single digits to more than 40 students. Reflecting on this growth, he notes: "I am now changing people's lives, giving them opportunities they didn't have, and quantitatively changing the way my profession looks across the country. That's pretty powerful motivation."

Dr. Pickett's academic path began at MIT, where he earned an SB in Physics in 1989, followed by a Ph.D. from the University of Chicago in 1995. He further developed his expertise in polymer science and materials engineering through postdoctoral work at the University of Pittsburgh and the University of Illinois at Urbana-Champaign before joining CSULB. His career since then exemplifies how sustained commitment to teaching, research, and program development can reshape a department and expand opportunities for students.

Congratulations to Galen on this well-deserved honor!

OUR LECTURER FACULTY : Empowering our students for success

Contributors: *Diego Gutierrez, Johnae Eleby, Victor DeLa Cruz*

*Doing my graduate education here, I found the physics department to be very close knit and very, very supportive with resources and lots of moral empowerment. All of this led me to believing in myself and my teaching abilities as I taught physics labs here. So now, I want to provide the same level of empowerment to everyone no matter their background and **provide an experience with the level of equity and justice everyone deserves.***

Being able to allow students, especially first-gen college goers to feel heard, and allowing them to feel validated is very important to me. First gen students can always come in feeling like they are not worthy of the opportunity, and as their professor, I always make it a point to make sure they understand their worth. I show them explicitly through their work, that they are just as capable as anyone else.

I would genuinely love to see a parking structure built on upper campus for students to park, because one of the biggest issues I see is students coming in late to upper campus classes, and their lack of accessibility to nearby parking on upper campus is a big factor to this issue. Other thing would be having a dedicated room for physics tutoring. Honestly, it would make a world of a difference!



Diego Gutierrez - lecturer since 2017



*Johnae Eleby - lecturer
since 2019*

*One of the reasons I chose CSULB was for its innovative science education programs, like the Science Learning Center. With a strong interest in educating all types of learners, I have been able to learn and develop new instructional techniques and learn how to cultivate safer, more inclusive learning environments. Ultimately, my hope has been to support students in discovering their potential and to **cultivate a learning environment where diversity of thought, experience, and identity are considered.** Throughout the semester, I try to make it a point to check on my students' overall mental health via a student check-in. One of my course goals is to create a positive and engaging learning environment; with that, there are often tasks for students to complete.*

This requires a brief discussion with their peers, which I hope increases comfort and reinforcement of certain concepts and topics. I think the department and university would benefit from support services that are virtual or more readily available as we move into a new age of technology. I also think there is a need for soft skill development.

*The Learning Assistant program with Dr. Pickett helped me realize my desire to teach physics. I am grateful to have grown in a welcoming and diverse community here at CSULB, first as a tutor, then a teaching assistant, and now as a lecturer. Throughout this journey, I have taught with the mission that **physics is for everyone, working to make students of every background feel welcome in my lectures** and during my office hours. I have a lot of fun blending complex problem solving with demonstrations and my own video recordings for a complete physics experience.*

I am proud of the small community of learners that I have built. Each student brings their own story and career plans, which I learn from to support the next set of students. It has been rewarding to lend a hand with information about different school clubs, grad school applications, and entrance exams.

From our department, I wish to see more opportunities for students to showcase and develop their talents outside of the classroom, just like I got to do when I first started teaching. I would also greatly appreciate some dedicated rooms for office hours to help serve our ever-growing student population.



*Victor De La Cruz - lecturer
since 2020*

Physics Teacher Education Coalition

PhysTEC

16

High school Physics teachers, their students, and CSULB students get together on the second Thursday of each month, sharing demos and building “make-and-take” experiments, ably led by Justin Fournier (pictured on right) - a former teacher-in-residence of the PhysTEC program and currently a lecturer in the department.



Justin Fournier,
Phys-TEC leader



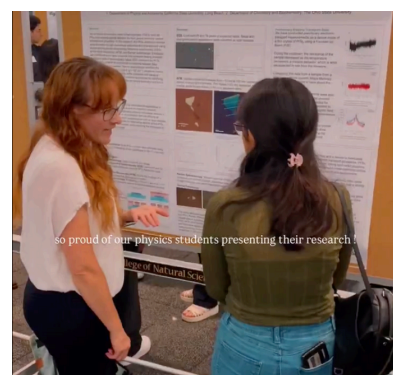
The PhysTEC program at CSULB celebrated another year of excellence, proudly maintaining our status in the PhysTEC 5+ Club, a distinction recognizing universities that graduate five or more highly qualified physics teachers in a single year!

Our diverse community of local teachers, university students, and faculty continues to expand, with attendance growing steadily at our monthly Demo Day events. These events have become a vital hub for sharing demonstrations, enjoying "Make and Take" sessions, and grappling with creative Engineering Challenges. This year's highlights included participants crafting turbine blades to maximize power production, designing sailboats to race across a water canal, and constructing water balloon bungee jumpers to launch off the flight of stairs outside the Hall of Science!

Beyond our monthly gatherings, we focused on supporting the next generation of educators. Our PHYS 491 students presented a workshop designed to support elementary teachers with skills and materials to effectively teach science in their classrooms. We even combined engineering with art by crafting light-up circuit cards—just in time for Mother’s Day! We look forward to another year of continuing to build this supportive community!

WOMEN IN PHYSICS (WIP)

The Women in Physics (WIP) club at the CSULB Physics Department continues to foster an inclusive, supportive, and engaging community for students of all gender identities. Open to transgender women, non-binary and gender-diverse students, as well as any student who values equity and belonging, WIP provides a welcoming space to connect, collaborate, and thrive. During Welcome Week, WIP members invited new and returning students to learn about the club's mission and activities. Throughout the year, WIP hosts study sessions, social gatherings such as movie nights and hangouts, and networking opportunities that support academic success and professional development. Members also gain access to the annual CUWiP conference, a nationally recognized event promoting gender diversity in physics. With its strong emphasis on community building, mentorship, and empowerment, WIP plays a vital role in enriching the culture of the Physics Department. Students are encouraged to join the WIP Discord for updates, support, and continued connection. WIP thanks faculty advisor Dr. Jiyeong Gu for her advice and support.



SOCIETY OF PHYSICS STUDENTS (SPS)

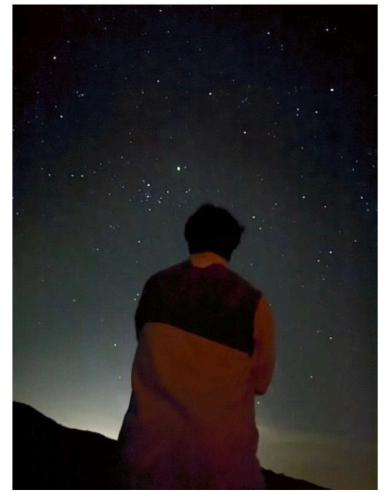


The Society of Physics Students (SPS) at CSU Long Beach has had an active and engaging semester, with events such as the scholarship party, an REU workshop with director Michelle Richards, and discussing faculty research. They successfully ran a tour of UCI's nuclear reactor with a total of 30 participants (picture below). In addition to supporting campus outreach, SPS continues to build community through regular meetings, social events such as movie nights, and fundraisers that help sustain student-led activities. With guidance from our faculty advisor, Dr. Claudia Ojeda-Aristizabal and support from the department, SPS remains committed to fostering collaboration, curiosity, and a vibrant culture of undergraduate engagement.



ASTRONOMY CLUB

The Astronomy Club has been hosting many fun events for students hoping to see stars, planets, and nebulae. The club has had Star Parties where students meet at Point Fermin, Palos Verdes to view the stars with food and snacks. Spring had students take a trip to Joshua Tree, a recognized Dark Sky Park, to camp over the weekend and enjoy the deep dark night sky with Dobsonian telescopes while eating smores by the fire. Last minute viewings also occurred for the total solar eclipse in April, and many people showed up to see the eclipse through specialized glasses and solar telescopes. The Astronomy Club is continuing with Star Parties as well as planning the next trip to Joshua Tree, with club meetings and activity days to build community on the way there.



CONDENSED MATTER JOURNAL CLUB

The student-driven Condensed Matter Journal Club in the CSULB Physics Department continued its active engagement this semester, meeting regularly to read and analyze contemporary research papers. Students discussed relevant papers via presentations and discussions, gaining confidence and taking initiative to understand developments in the field at their own pace and level of understanding. Topics included advances in topology, magnetism, and other emerging areas of condensed matter physics - these topics are also being covered in a new course being developed by faculty members Andreas Bill and Sarah Greife, which will be taught in Spring 2026 as PHYS 465/565 "Topics in Condensed Matter Physics". These peer-led discussions among students fostered collaborative learning and helped participants strengthen both conceptual understanding and scientific communication skills. The Physics Department remains strongly supportive of student initiatives like this journal club, recognizing their value in cultivating a vibrant research culture and encouraging early involvement in scholarly activities.



ALUMNI STORIES - WHERE ARE THEY NOW?

Prof. Andrea Citati



CSULB was an outstanding experience (graduated Spring 2016), from the closeness of the department to the graduate students to the collective physical areas where the students and faculty managed to interact. As a silly example, the coffee and cookies prior to the weekly Colloquium creating a community feeling. Additionally, I felt VERY supported when assigned the Lab section to teach. That was one of my favorite experiences as the Department felt like a safe environment to practice my teaching techniques.

A few months after I graduated I got an adjunct job at Platt College (Anaheim, CA), teaching general physics and work there for one Academic year, and in the Spring semester, I also worked part-time at Golden West College (GWC) teaching Astronomy for that academic semester. In 2017 I got a full-time lecturer job at the University of Wisconsin - Parkside, mostly to teach introductory Astronomy and Physics courses. It was a pleasant experience to have full responsibility for a course at the university level without having the fallback. Today I am still a Physics & Maths lecturer, teaching Engineering (Statics & Dynamics), Algebra and Calculus-Based Physics, and introductory Math courses (as the Math and Physics Department are combined). On July 1st, 2020, I took the responsibility as Chair of the Department, with 17 faculty + academic staff. On the academic side, it was helpful that the faculty were close to the students and easily broke the fourth wall between both sides of the lecture room. In general, **the teaching methods were outstanding and I took positive examples that I use today** from all my courses, from experimental courses to more rigorous theoretical courses. - **Andrea Citati**

While I was at CSULB I definitely liked the people the most out of everything. **Everybody was supportive and fun to be around**, from working on homework together, to playing soccer after class. Right now I am finishing my PhD in experimental physics at the University of Illinois at Urbana-Champaign (UIUC), working mostly on topological superconductivity experiments, along with some magnetic material transport experiments. - **Alexander Beach**
Alexander is also an alumni of the APS Bridge Program.

Update: Dr. Alexander Beach recently received his PhD from UIUC in May 2025!

Dr. Alexander Beach

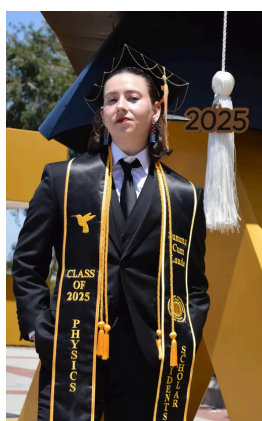


Nicholas Lozano



While at CSULB, I worked with Dr. Jaikumar studying neutron stars. After graduating in 2022, I began to work for the Physics Department as a lecturer and later as one of the Instructional Lab Support Technicians. Earlier this year, I accepted a new position working as a civilian in the United States Space Force as an Acquisitions Program Manager and I'm responsible for integrating satellites onto rockets and making sure that they successfully reach outer space. I think the best piece of advice I could give to students is that **no matter how difficult grad school can be, always persevere**. Just because things don't work out the way you think, something even better might just be around the corner - **Nicholas Lozano**

Reon Allen



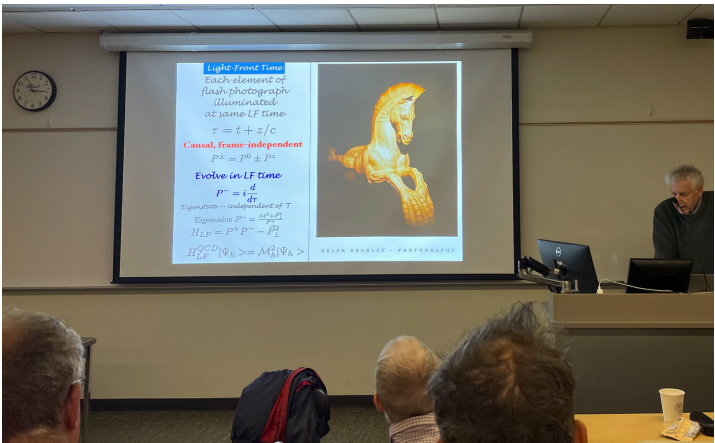
After graduating in May 2025, I moved to Louisiana and began searching for work while applying to Ph.D. programs for Fall 2026. I unexpectedly started teaching adult ballroom dance, which has been a rewarding way to stay creative and meet people while continuing workshops and application preparations. Although I enjoy dance, my ultimate goal remains a Ph.D. in Astrophysics. My time at CSULB was formative. The support I received kept me motivated, and I completed an Honors Thesis with Dr. Joel Zinn, conducted REU research in Chicago, presented at conferences, and graduated Summa Cum Laude. **I cherish the community built through my research group**, the astronomy club, and countless conversations in the SPS room. Stay active, communicate, take advantage of every opportunity the department offers. - **Reon Allen**

DISTINGUISHED LECTURE IN PHYSICS 2025

PROF. STANLEY J. BRODSKY

(Stanford Linear Accelerator Laboratory)

The Physics Distinguished Lecture Series at CSU Long Beach brings decorated and renowned physicists to campus to share groundbreaking research and inspire both students and the wider community. In 2025, the department welcomed Dr. Stanley J. Brodsky, Professor of Theoretical Physics at the SLAC National Accelerator Laboratory and a renowned expert in quantum chromodynamics (QCD). Dr. Brodsky delivered a technical lecture on February 17 and a general-audience lecture on February 19, offering an in-depth look at new theoretical approaches to understanding the strong force and hadronic structure.



In his general lecture, Dr. Brodsky surveyed broader applications of light-front methods, including new insights into quark confinement, the origin of hadronic masses, and phenomena such as color transparency, hidden color, and intrinsic heavy quarks. He emphasized that these methods extend beyond particle physics, offering fresh perspectives even in relativistic atomic systems.

His technical presentation focused on advances in hadron physics achieved through color-confining light-front holography and superconformal quantum mechanics. Dr. Brodsky discussed how light-front holographic QCD predicts the behavior of the QCD running coupling across all energy scales, and how the Principle of Maximum Conformality allows precise, scheme-independent Standard Model predictions.

Dr. Brodsky, a Sakurai Prize and Pomeranchuk Prize laureate, has been a leading figure in theoretical particle physics for decades. His visit provided the CSULB community with a valuable opportunity to engage directly with one of the field’s most influential thinkers.



We are deeply grateful for the anonymous donor for supporting the Physics Distinguished Lecture Series!

Commencement 2025



College of Natural Sciences and Mathematics Awards

Richard D. Green Dean’s Outstanding Baccalaureate - **Movindu Dissanayake Mudiyanse**
Richard D. Green Dean’s Outstanding Graduate Scholar - **Tyler Hadsell**
Outstanding Master’s Thesis Award - **Armando Reynoso**

Departmental Undergraduate Honors

Brendan Winkler
Keara LeeAnn
Audrey Corbin

Departmental Graduate Honors

Andrew Joshua Householder
Fernanda Razo
Adam Riley Bowen

Specialty & Department Awards

AAPT Outstanding Teaching Assistant Award
Felipe Kosareff

Department Outstanding Service Award
Nathan Kim

Department Outstanding Teaching Assistant Award
Daniel Cohen-Cobos,
Erin Henkhaus, Brian Wilcox



Physics graduates seated at the Angel Stadium in Anaheim where the past few commencement ceremonies have been held.

Faculty Staff Annual Luncheon

Pictures from our annual faculty / staff luncheon in May 2025



Thank You to all our Scholarship donors!

Scholarships & Student Awardees

John E. Fredrickson Endowed Scholarship
Andrew LeBlanc

Olaf and Mary Jane Anfinson Endowed Scholarship
Tanner Massimino, Timothy Van Hoomissen,
Alexander Goytia-Fajardo, Eric Corona-Oceguera,
Miguel TzinTzun

Keung Luke, Charles Roberts and Richard Whiteley
Endowed Scholarship
Kaeden Russell

Kevin Kwok Chan, HK Alumni, Keung Luke
Endowed Scholarship
Victor Pham

John and Terry Milligan Scholarship in Physics
Holland Karaghiaulleian

Richard and Florence Scalettar Scholarship
Michelle McKenzie, Joshua Luna

Irene Howard and Keung Luke Endowed Scholarship
Trevor Weiss

John Turner Scholarship
Gavin Lucsik, Joshua Luna

Congratulations to all the awardees!

Thank You to all our Assistantship donors!

Assistantships & Student Awardees

Google Summer Assistantship

Daniel Cohen-Cobos, Alexander Goytia-Fajardo,
Eric Corona-Aceguera, Ivy Boiko, David Morales-Zapien

Margaret Heeb Student Research Assistantship

Brianna Chrisensen

Lai Kai Gunn, Ng So-Ning and Keung Luke Assistantship

Mario Vasilev, Emiliano Benitez

Kristina T.L. Wong, L. Desmond Wong, Nancy F. Wong,
Pamela T. M. Wong Rennick and Keung Luke Assistantship

Tanner Massimino, Anthony Acebal

Giesela and Wilfried Eckhardt Assistantship

Ethan Hsu, Alan Meija

Simon George and Keung Luke Assistantship

Steven Le

Daniel and Grace Lim and Keung Luke Assistantship

Gavin Lucsik

Congratulations to all the awardees!

IN MEMORIAM DR. EDWIN (TED) WOOLETT (1935-2025)

The following is shared in memory of Dr. Edwin L. (Ted) Woollett, former faculty member and a pioneer of computational physics in the department, who passed away on October 15, 2025. Ted served 35 years (starting in 1966) as a Physics and Astronomy faculty member at California State University, Long Beach. His research covered theoretical plasma physics, non-equilibrium thermodynamics, x-ray spectra, high-energy nuclear physics, and physics-and-society topics. His contributions to the department and his selfless dedication to those around him will be long remembered.

In Loving Memory of Edwin (Jed) Woollett

Contributed by: **Cindy Absmeier**

We have so many cherished memories of our stepfather, Ted Woollett. When he joined our family, he brought with him not only love and respect for our mother, Kathleen Bellefontaine/Woollett, but also a deep acceptance of her three daughters. We were incredibly fortunate to gain a father figure who embraced us wholeheartedly. Ted had a distinguished career as a professor at California State University, Long Beach, where he taught for 33 years. His passion for education and learning never waned, even after retirement. When he and our mother moved to the Central Coast, settling in Morro Bay, they embraced a peaceful life by the ocean. The move in San Luis Obispo to get us out of the fog, but only 15 minutes away, as they still embraced the beauty of living coastal.

Retirement for Ted was never about slowing down. He remained deeply engaged in his love for physics and continuous learning. He immersed himself in “Maxima,” a computer algebra system. He authored twelve chapters on the subject, and found great joy in interacting with other mathematicians and responding to their questions. For Ted, learning was a lifelong journey.



*Ted Woollett in his faculty office
in the CSULB Physics department*

Ted and Kathleen spent their retirement traveling across country to visit family and friends, to national parks and monuments, sometimes accompanied by their daughter’s six grandchildren. These road trips created lasting memories filled with laughter and strengthened the bonds within our family. They were active members of their community, participating in a book club at the Nazarene Church for over 20 years and engaging in thoughtful discussions with their “Dine-Out” group of fellow retirees. Ted was an avid reader, and their home was filled with books and music. He had a particular fondness for jazz and enjoyed curating his digital music library. Though he held onto his trusty flip phone, he was always curious about new technology and loved asking his daughters to “Google it” when he had a question. Ted’s intellectual curiosity extended beyond physics to economics, statistics, and biology. He held strong political views and was deeply informed, always encouraging thoughtful conversation. As his daughter, I am grateful for the many discussions we shared. Ted never let a conversation end without asking a thought-provoking question or sharing a piece of knowledge. His dedication to learning inspired me to ask questions and seek deeper understanding.

We are forever grateful for the life and love Ted gave us. His legacy lives on in the values he instilled, the memories we cherish, and the lessons we carry forward.

GIVING

The Department relies solely on private contributions to fund essential student enrichment activities. These include:

Faculty-mentored Research Experiences
Weekly Colloquia Featuring Visiting Scientists
Training on State-of-the-Art Instrumentation
Rooftop Astronomy Nights & Outreach
Mobile Planetarium Trips & Maintenance
Scholarships & Assistantships
Student Clubs (SPS, Women in Physics, Astronomy Club)

Your generous contributions directly impact the quality of the educational experience we can offer our students. They play a crucial role in ensuring that diligent students receive the necessary financial support to stay on course and graduate with minimal to no debt.

Give online at www.giveto.csulb.edu



To establish a named scholarship or assistantship, create an endowment, or include the Department in your Will or Trust, please call or email:

Christina Hall, Director of Development

562-985-1780

Christina.Hall@csulb.edu

We offer heartfelt thanks to our generous donors, named and anonymous, for their invaluable support. Your contributions towards enhancing educational experiences for our students are truly making a lasting impact. Thank you for championing the causes of Physics and Astronomy at CSULB, and acting as catalysts for change in our students' lives.

2024 - 2025 Newsletter

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Department of Physics and Astronomy

1250 Bellflower Boulevard

Long Beach, CA 90840-9401