Little Shop of Physics

May 2025 Newsletter

31st Annual Open House

On March 2, 2025, the Little Shop of Physics welcomed more than 7,000 visitors to our 31st Annual Open House at Colorado State University. This free public event featured over 300 hands-on science experiments, engaging presentations, and interactive exhibits from more than 30 science partners from CSU and beyond.

Our Crew

At the heart of this event was our incredible team. Nearly 200 people—including interns, volunteers, and LSOP alumni—came together to make the day a success. Starting in the fall semester, our interns designed and built new experiments while refurbishing old favorites. On the day of the event, they were joined by dozens of LSOP alumni, more than 100 current CSU students from physics and astronomy classes, and members of campus clubs. This dynamic crew set up activities, engaged with the public, and kept everything running smoothly all day long.

Partners

This year's Open House was enriched by more than 30 partner organizations. Alongside departments and groups from the College of Natural Sciences—including the Department of Psychology, Women in Physics, and the Society of Physics Students—we welcomed collaborators from across CSU and far beyond. Partner highlights included:

- The return of our friends from the Oglala Lakota Nation, sharing their powerful *Lakota Star Knowledge*.
- Eighth-grade students and their teacher Debbie Holman from Wellington Middle/High School, presenting in the *Matthew A. McCausland Science Explorations Room*.
- The Physics Bus and Community Science Workshops, representing both coasts.
- Our very own Amplify MURALS First-Year Scholars, who shared hands-on activities both inside and outside—you can read more about their work in a separate article in this newsletter!

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Presentations

We were thrilled to offer a series of exciting, interactive science presentations this year:

- **Kenn Lonnquist** (CSU Physics) literally lit up the room with *The Million Volt Tesla Coil*.
- **Ansel Foxley** (University of Northern Colorado) blended art and science in *The Physics of Music*.
- **Wendy Adams** (Eaton High School) and her students wowed the crowd with *15 Demos in 30 Minutes*.
- **The CSU Chemistry Club** served up *Liquid Nitrogen Ice Cream*—a crowd favorite so popular we had to move it outside! Many thanks to **Morning Fresh Dairy** for donating the milk products.

Sensory-Friendly Exploration

New this year, we partnered with the CSU Student Disability Center to create our Sensory-Friendly Room—a quieter, more welcoming space for those who benefit from a less stimulating environment. Located on the second floor, away from the bustle of the main exhibits, this area featured dozens of hands-on activities in a setting designed to reduce visual and auditory distractions.

This initiative reflects our deep commitment to making science accessible to everyone. We believe science is for all, and we look forward to growing and improving this space in future years with input from our partners and community.

With Gratitude

We extend our heartfelt thanks to our sponsors: the College of Natural Sciences, the McCausland Foundation, Jim Sites and Elaine Regelson, whose generous support allows us to bring hands-on science to thousands of learners each year.

The Color of Curiosity by Cecilia Dauer

Little Shop is colorful, from our tie-dye shirts and spray-painted experiments to our shelf of patterned duct tape and endless collection of doohickeys and thingamabobs. These are the obvious signs, but what truly makes Little Shop colorful is its people.

Each person is their own unique palette, and every time you enter a Little Shop space, you see a bit of everyone who's ever been part of it. Every object has a place and purpose, and the love behind them shows—layer after layer, project after project.

Some of that love is new and bright, such as a giant German wheel wrapped in foil because Cherie found a fun new use for it, or a growing line of bottle cap badges on Bearington's sash. But some color lingers quietly from the past: Brian Stanley's intern cards still turn up, Mr. Joe's sign still hangs over the workshop, the hole in the ceiling still leaks on cloudy days, Adam's photo still watches over the desk, Denny's x-ray mug remains on the shelf, and old layers of duct tape pile on my desk, making me wonder about the interns who first left them.

The workshop is a mess—we may not be the fire department's favorites—but it's a mess I love. The stained tables stacked with experiments are where we learn, grow, laugh, and live in full color. They've been used for decades, their splotches telling the story. All of this, just to bring science to kids.

I've always wanted to be a science teacher, but I didn't start learning how until I stepped into Little Shop four years ago. I always thought science was bright and shiny, but Little Shop made it colorful. It taught me curiosity, gave me tools to chase my dreams, and warmed me when the outside world felt cold.

I've seen awe on so many faces here and I've learned to find awe in my own life, too. Little Shop showed me how big the world is, and how to truly see it. For that, I'll always be grateful.

Yes, it's just a job. Just a place. We just share science with kids. But "just" doesn't do justice to the heart of Little Shop of Physics.

Little Shop is colorful—in every sense of the word. If you're reading this, I hope you still carry a bit of its color with you, just as it carries a bit of yours. As I graduate (and hopefully teach around the world), I'll carry Little Shop with me—so that life is always filled with curiosity and color.

MURALS First Year Scholars Bring Hands-On Science to Life

In Fall 2024, Little Shop of Physics (LSOP) partnered with MURALS and the Amplify Learning Community to launch two First Year Scholars (FYS) Academies: Show Me Some Science (SMSS) and Hands-On Activities for Pre-K through 12 Learners.

These academies gave first-year students a unique opportunity to design and develop interactive science activities for audiences ranging from preschoolers to their fellow college students. With support from LSOP staff and interns, the students refined their projects through research, feedback, and iteration—gaining valuable experience as science communicators along the way.

From Brainstorm to Open House

Each group worked toward their capstone: presenting their activities at the 2025 LSOP Open House on Sunday, March 2 (see page 1 for Open House highlights).

Indoor exhibits featured projects such as kaleidoscopes, catapult launchers, ramp cars, illusion activities, and tests of reaction time and visual perception. Outdoor activities included bubbles, parachutes, and paper rockets.

Across the day, the MURALS scholars gathered both formal and informal data from visitors—including sticker-board polls and Google Form surveys—giving them firsthand insight into how people engage with science and what makes an activity truly effective.

Research in Action

The students then synthesized their observations into research presentations, which they shared at the MURALS Symposium on March 28. Their work included both posters and talks, communicating not only what they built but also what they learned about science communication, educational design, and audience interaction.

The Bigger Picture

These First Year Scholars have grown remarkably over the past year—not just as students, but as educators, researchers, and leaders. They've learned to approach science as a creative, collaborative process and to think critically about how people learn. We're incredibly proud of their accomplishments and excited to see where their curiosity takes them next!

Fundraiser at Maxline Brewing

We recently celebrated the end of another incredible school year with a community fundraiser at Maxline Brewing! Over the past year, we've reached more than 20,000 K–12 students with hands-on science exploration—and we thought that was well worth celebrating.

Maxline Brewing generously hosted us, providing space for our interactive science experiments and donating a portion of sales to support our mission of bringing science to schools every week. We were thrilled to welcome current interns, alumni, friends, science partners, and members of the public who came out to support the cause. The physics department chair, interim dean of the College of Natural Sciences, and the county commissioner even made cameos!

A highlight of the evening was live music from our dear friend, fellow physics educator, and talented musician, Ansel Foxley, who generously donated his time—on his birthday, no less—to play for the event. Ansel, your kindness and talent truly made the day unforgettable. Thank you!

Lastly, a huge thank you to Maxline Brewing for your generosity, hospitality, and belief in our mission. We're so grateful for your support!

School Report!

We're probably best known for our traveling road program, where we bring hands-on science to schools each week. Right now, we're on a mission to visit every elementary school in the Poudre School District, and we're well on our way! This three-year journey aims to engage over 11,000 young scientists. This semester, we added Beattie, Linton, Zach, Rice, and Polaris to our growing list of schools visited.

Each week, our hardworking undergraduate interns repair existing projects and build new ones so we can load up a van full of science and head out to inspire students across the district. Looking ahead, our fall calendar is already booked—and we're thrilled to share that a recent grant from the OtterCares Foundation will help us expand even further.

Huge thanks to OtterCares and to all of our donors for believing in our mission of Science for All!

My Experience with the Little Shop of Physics by Damian Rupp

"What is the water hammer effect, and why should we care about it?" my coworker asked, frustration in his voice. We were designing a component for the main feedline of a rocket—yes, the kind that goes to space. He had just come out of a meeting with the chief engineer, who was curious whether our design accounted for the water hammer effect. I immediately thought back to my time at The Little Shop of Physics, where we demonstrated the concept with a glass Coke bottle and a rubber mallet. When the top of the bottle was struck, the water inside accelerated rapidly, generating a pressure wave that traveled through the liquid—strong enough to shatter the bottom of the bottle.

I had the privilege of working with the Little Shop of Physics from 2015 to 2020. During those years, I experienced the joy of bringing hands-on science to people of all ages. One of the most rewarding aspects of my work was participating in trips where we connected directly with students, teachers, and communities.

A standout memory was traveling to Namibia, Africa, where I conducted a teaching session with local educators. Together, we explored a new K-12 curriculum designed to integrate hands-on science with everyday life. It was inspiring to see the excitement and enthusiasm of the teachers as they discovered new ways to engage their students. We spent two weeks in Namibia, the first week at B2 Gold, a gold mine kind enough to host us and the teachers. We did demos and introduced the teachers to interactive learning methods that used minimal materials. The second week the teachers design experiments that were implemented into their classes. It was shocking to learn that a third of the teachers taught in schools with no electricity. At the end of the trip, B2 Gold announced they would fund a project to bring electricity to the schools that didn't have it.

The skills I developed with the Little Shop of Physics—creative problem-solving, adaptability, and effective communication—have been invaluable in my career as a rocket scientist. My time there helped shape my approach to tackling challenges and thinking outside the box, whether I'm designing experiments for students or creating components for rockets.

Reflecting on my time with the Little Shop of Physics, I'm grateful for the opportunity to have been part of something so impactful. It was a chapter of my life filled with exploration, connection, and the thrill of making science accessible to everyone.

Little Shop Visits the Navajo Nation

This spring break, a team of ten Little Shop of Physics crew members packed up our van with nearly 100 hands-on science experiments and headed to the Navajo Nation. We visited two schools—White Horse Jr/Sr High School in Montezuma Creek, Utah, and Red Mesa Elementary / Jr. High School in Teec Nos Pos, Arizona—connecting with over 650 students in total.

Our crew, made up mostly of undergraduate interns, led engaging, interactive experiments exploring light, motion, magnetism, and more. For some team members, this was their first trip away from home without family—but they quickly found their stride, stepping up as leaders and educators.

Students from Pre-K through 12th grade eagerly jumped into the activities, and teachers noted how energized and collaborative their classrooms became. We also distributed Science-at-Home kits filled with new materials like UV-sensitive beads, color-changing pencils, and rainbow glasses, helping students continue their exploration beyond the classroom.

In addition to school visits, we had time to connect with the region's rich culture and history by viewing ancient petroglyphs and soaking in the beauty of the desert landscape. It was a powerful learning experience for our team as well, deepening our appreciation for Indigenous communities and traditions.

We're grateful to the schools, educators, and students who welcomed us so warmly. The excitement we witnessed and the connections we made are a vivid reminder of why we do this work.

Science@Home Video Series

We're excited to announce a rebranding of our popular video series Get Your Science On to Science@Home. This series reboot will show you how to do fun science experiments right at home using everyday objects. As a part of our Science For All tour theme, we're now offering the videos in both English and Spanish. We're thrilled to have Luiz Aceves kick off this new chapter. Stay tuned for more Science@Home!

Navigate over to LSOP's Science@Home page to see the latest and greatest: lsop.colostate.edu/ScienceAtHome/

PEPPER'S GHOST

CREATE A HOLOGRAM-LIKE ILLUSION USING LIGHT AND GEOMETRY

Pepper's Ghost is an optical illusion that uses the principles of geometric optics to create a 3D visual effect. While it may look like a hologram, the underlying physics is quite different—and much simpler to explore at home!

EL FANTASMA DE PEPPER

CREA UNA ILUSIÓN TIPO HOLOGRAMA CON LUZ Y GEOMETRÍA

El "Fantasma de Pepper" es una ilusión óptica que utiliza principios de la óptica geométrica para crear un efecto visual en 3D. Aunque parece un holograma, la física detrás es muy diferente—¡y mucho más fácil de explorar en casa!

Our Graduating Interns

Congratulations to our graduating interns!

Alexandria Dolan

B.S. in Physics with Honors

Cecilia Dauer

B.S. in Natural Sciences

Daniel Berning

B.S. in Mechanical Engineering

Kate Kroening

B.S. in Environmental Engineering

Luiz Aceves Plascenia

B.S. in Computer Science

Upcoming Events

2nd Saturday at CSU Spur — Saturday, June 14 and Saturday, August 9

Join us for 2nd Saturday at the CSU Spur campus from 10:00 a.m. to 2:00 p.m.! These fun-filled events feature activities from a variety of CSU Spur partners, including Little Shop of Physics, located on the second floor of the Vida building. Maps and event details can be found at CSU Spur Website: csuspur.org/2nd-saturdays-at-csu-spur

CSU Lagoon Concert – Thursday, June 18, 2025

Join us on the CSU campus for a free outdoor concert as part of the Lagoon Summer Concert Series. We'll be there with some of our favorite hands-on experiments. Come early, explore some science, and stick around for the music! Details at Lagoon Series website: lagoonseries.com

Neutrino Day — Saturday, July 12, 2025

We're heading back to Lead, South Dakota for Neutrino Day—the state's largest free science festival! This lively event features hands-on exhibits, live entertainment, engaging talks, and tours of historic sites. We're excited to return for our third year with over 100 interactive experiments. Learn more at Neutrino Day page: neutrinoday.com

LSOP Annual Open House – Sunday, March 1, 2026

Save the date! Our 32nd Annual Open House will be packed with hundreds of hands-on experiments, dynamic presentations, and partners from across CSU. Planning to come as an alum? Join us for a reunion the night before. Contact Adam for details. Find more information at our Open House page: lsop.colostate.edu/Open-House

Don't Be a Stranger

If you're able, please consider making a donation to help us continue bringing hands-on science experiences to learners of all ages. CSU Campus Give: col.st/yLg3X

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