

- Ask the athletic director
- The Techers prepping PRIMA
- Turtle wrangling season; and more

Desert Travelers

Field trips, even those not centered solely on research, are a core element of instruction in Caltech's Division of Geological and Planetary Sciences (GPS). The division offers all graduate and undergraduate GPS students the opportunity to attend one enrichment trip during their time at the Institute. These excursions, which are funded by philanthropic donations, typically occur annually and are designed for students to bond while exploring a country's geography and taking part in cultural experiences.

"Enrichment trips are truly a special part of the division," says Claire Bucholz, professor of geology, who led the August 2025 trip to Mongolia, which included a visit to the country's Flaming Cliffs to look at dinosaur fossils, as well as a tour of the Oyu Tolgoi porphyry copper-gold mine, among other activities. Typically, graduate students come up with a plan for which country or countries to visit and sketch out the itinerary. Then, they recruit two faculty or staff members to go along. Past trips have ventured to Alaska and Canada, Iceland, and New Zealand. "We have atmospheric chemists, sedimentologists, planetary scientists all getting together and going on this big adventure," Bucholz says. "The insights from different parts of the division and the connections and the relationships you build are really important. On this trip, we were fortunate to have five graduate students from Mongolia with us with whom the Caltech students quickly became friends and learned so much from."

The photo at left was taken just after sunrise at the Khongoryn Els dune field, the largest in the Gobi Desert, where the Caltech group stayed in *gers*, or traditional Mongolian circular dwellings. "I got up early and wanted to get to the sand dunes for the sunrise," Bucholz says. "I was looking out at these really impressive macroscopic features, but you could also see the little ripples on the surface, which show you the direction of more recent wind transport. Then there was this little beetle walking across, so it caught my eye as an interesting juxtaposition of biology and geology."





Four Questions for :

◀ Caltech Athletic Director Terry Tumey

Terry Tumey, who joined Caltech in October 2025, brings with him professional experience as a college football player and coach, and as a college athletics administrator at NCAA Division I, II, and III schools, including UC Davis, Claremont-Mudd-Scripps, and, most recently, Fresno State. Here, we speak with Tumey about his first few months at the Institute and his vision for the Department of Athletics, Recreation, and Instruction (ARI).

1. Given your professional background, what made a return to Division III athletics, and at Caltech in particular, appealing for you?

The main reason I got into higher education was the investment in the experiences of students, which to me is extremely valuable and is an opportunity that I don't take lightly. Where else can you do that at the purest form, which is at Division III and at Caltech? You can't find a better place to really feel that sense of investment and that sense of worth, where I'm doing good work to really enhance the experience of people.

2. What have you learned about Caltech student-athletes?

They may be the most efficient people I've ever met in my life. I don't know how they accomplish all that they do and perform at such a high level. They are excelling, of course, in research, in their classrooms, in their personal lives. Then to top it all off, they have the ability to achieve growth through competition. I have such an admiration and respect for our student-athletes because they are truly some of the best of the best as it relates to what you would expect of a student in a collegiate space.

3. Is there a particular encounter with a student-athlete that stands out?

I spoke to one of our swimmers, who was in the midst of applying to law school. She shared how she's been able to

navigate and feel completely supported within this community and by the array of individuals who have participated in her experience—not just coaches, though they're a large part of it. She also has faculty members and administrators who are part of her team. Candidly, I'm hoping that I can be a part of her team as we move forward.

4. What do you envision for Caltech athletics and recreation in the next five years?

The biggest opportunity is to re-engage our community. I would begin right here with our Caltech population by creating open channels, such as surveys or a portal for commentary. Communication and response are key for a healthy relationship with our community. We also need to have a real understanding and appreciation from our surrounding community of what Caltech means to the city of Pasadena, to California, to those who come and engage with us. If that can be reflected in what we do here at ARI, that would be a great way to encapsulate the power of Caltech.

Passing the Torch of Knowledge

Fourth-year graduate student Muntasir Hassan often read a book per day in high school. In 2025, however, deep into his PhD candidacy at Caltech, he read only two books during the entire year.

That shift led him to ponder how to keep reading present in not only his life but those of his peers and community. At a campus event in September 2025, Hassan approached Joseph Greenwell, then newly appointed as associate vice president of student life, with an idea: to create an open library and book exchange hub on campus.

On March 1, 2026, his vision officially opened to the public. Located in the Hameetman Center, between the Caltech Store and the Red Door Marketplace, the Moshaal book exchange hub—named for a Bengali word meaning “torch”—operates like a Little Free Library. Any member of the Caltech community is welcome to take a book and/or leave one for others to enjoy.

The term *moshaal* alludes to the official Caltech seal, in which two hands hold up a torch. Hassan says he hopes Moshaal will represent the light of knowledge passed through the books Caltech community members will share with each other.

Moshaal was developed with support from the Graduate Student Council (GSC), Student Affairs, and the Caltech Library. The GSC will serve as a steward for Moshaal; its members will regularly maintain the hub and check on the books to make sure they are in good condition and align with Caltech's community standards.



Turtle Wrangling

Every spring, Caltech gardeners like Thanh Vanh Du (right) take on an additional responsibility: turtle wrangling. As Throop Pond's famous red-eared slider turtles come out of hibernation, some traverse campus to find a place to lay their eggs. "There are two that love to go into the Caltech Hall fountains," says Delmy Emerson, director of Buildings and Grounds. "We get a lot of calls about their wandering." Facilities staff members are trained to bring the turtles back home safely. They also provide the aquatic animals with a balanced diet and monitor and clean the pond's water filters twice a week.



Celebration Selfie

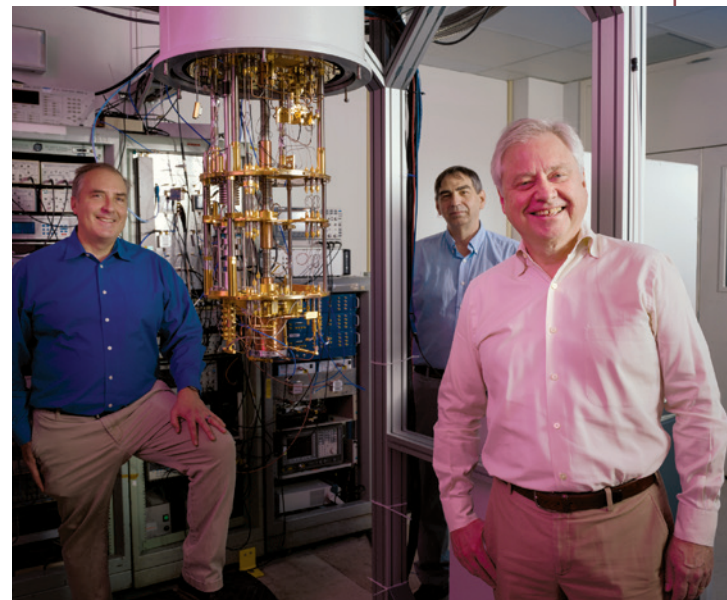


President Thomas F. Rosenbaum poses with well-wishers on the Olive Walk after a February celebration in which he thanked the Caltech community for their energy, insight, ingenuity, and commitment during his tenure of more than a decade, which ends in June 2026.

PRIMA's Caltech Connections

NASA's PRIMA (PRobe far-Infrared Mission for Astrophysics), aims to be the most advanced mission to date for studying far-infrared light emanating from planets, galaxies, and other cosmic objects. To do that, it would rely on strong connections to Caltech, including an invention by 2026 Watson Medal winner Jonas Zmuidzinas (BS '81), Caltech's Merle Kingsley Professor of Physics, and his JPL colleague Rick LeDuc. In 1999, the pair came up with the idea for superconducting microwave kinetic inductance detectors (MKIDs or KIDs), which are ultrasensitive photon sensors that can be built into large arrays. Because PRIMA requires superior detectors that can observe faint far-infrared light from deep space, the mission's concept and science goals rely on their invention. Meanwhile, JPL's Matt Bradford, who is also a visiting associate in physics on campus, serves as PRIMA's project scientist. Should NASA give PRIMA the green light in 2026, Caltech's IPAC would handle observation planning and scheduling as well as scientific data processing, archiving, and dissemination.

Caltech manages JPL for NASA. The Watson Medal is a National Academy of Sciences honor presented every two years for "outstanding contributions to the science of astronomy."



From left: Matt Bradford and Rick LeDuc with Jonas Zmuidzinas in JPL's Microdevices Laboratory.

Amber Liu (first-year undergraduate student)

#SoCaltech is an occasional series celebrating the diverse individuals who give Caltech its spirit of excellence, ambition, and ingenuity. Know someone we should profile? Send nominations to magazine@caltech.edu.

Liu, who grew up in Atlanta, has played table tennis since age 7. She has competed in dozens of tournaments, and, at age 15, earned a spot on the US team that competed in the 2024 World Team Table Tennis Championships in South Korea, where she won the only match she played in. As a member of the Caltech Table Tennis Club, Liu helped the team win the 2025 National Collegiate Table Tennis Association tournament. She is exploring applied and computational mathematics as a possible major.

"My hardest competition was the US National Table Tennis Championships in 2023 when I was 15. I needed to reach the semifinals to make the national team for the world championships the next year. After a long fight, I placed first in the under-15 girls' singles event. It was a lot of pressure because it's what I had been working for the whole year. It's also single elimination, so if you lose, you're out. Winning required a lot of mental and emotional strength. I doubted myself a lot, but my coach would tell me, 'Just go and do it whether or not you think you can.' In the world championships, we were the underdogs, so I felt less pressure. I was the youngest on our team, and the entire team was much younger than the others. For many of us, it was our first time playing in an adult championship, so we didn't have anything to lose.

Table tennis has taught me a lot about discipline and how to adjust my mindset and control how I feel and perform. It gives me a lot of courage to try things that may seem out of my comfort zone or like I have to put in a lot of effort, because I've already done something harder. For example, I wasn't scared at all to come to Caltech, and it's been great. Meeting people I didn't know through the club has been really exciting. Even though the other members are all graduate students, it's nice to play with people, and we also get to play as a team in collegiate tournaments. I really hope that more undergrads, even people who just play for fun, decide to join the club."



In the Community

The Pasadena Math Pipeline

Thanks to a recent partnership between the Pasadena Unified School District (PUSD) and Caltech, as many as five high school juniors and seniors in the district's Math Academy now have the opportunity to join the Institute's first-year math core courses (Math 1 a, b, and c) each year.

Omer Tamuz, professor of economics and mathematics, directs the dual-enrollment program for Caltech and says the program aligns with the Institute's recruitment efforts. "I think there's a general wish to expand Caltech's relationship with local schools," he explains. "We don't want to miss out on exceptional local talent."

Math Academy students, who can join the accelerated program as early as sixth grade, finish the high school Advanced Placement math curriculum in middle school and turn to proof-based college mathematics in ninth grade. "They are about four years ahead," Tamuz says.

Lucas Kittle and Jacob Monson, a junior and senior at PHS, respectively, were the first students to simultaneously enroll at Caltech and PUSD under the new program, which launched in fall 2025. "Having this solid Caltech credit is going to be a big help when I apply to colleges, and I value the opportunity to learn what college classes are like," Kittle says.

However, going from intimate Math Academy sessions to the Math 1 series at Caltech, which enrolls more than 100 students, was a major transition for the high schoolers. Monson values how teaching assistants personalize learning during recitation sections, and says he appreciates the depth of exploration. "Compared to Math Academy classes, Math 1 helps you dive deeper into each

topic and see the root of how it's built and how it connects to other topics." PUSD teacher Chris Anderson helped formulate the Caltech-PUSD program. "A lot of these students want to go to Caltech; it's one of the schools on their list," he says. "So, Caltech gets



to see them, they get to see Caltech, and you can have a beautiful marriage of high-achieving student with high-achieving institution." The Math Academy, which was formally adopted into the PUSD curriculum in the 2016–17 school year, has seen two participants go on to

Above: Pasadena High School students Jacob Monson (left) and Lucas Kittle at Caltech.

become Caltech students before the launch of the dual-enrollment program: Justin Hong, now a second-year undergraduate studying computer science, and first-year graduate mathematics student Luisa Boateng. In addition, Math Academy alumnus Matteo Paz, now a research support technician at IPAC, a science and data center for astronomy at Caltech, won the 2025 Regeneron Talent Search for writing an AI algorithm that helped reveal 1.5 million celestial objects, research he conducted at the Institute.

Laureen-Nadirah Nayo, PUSD's director for the joint program, selects dual-enrollment candidates from among the pool of students who have completed all the prerequisites. Students are recommended on the basis of their grades, focus, maturity, and work ethic.

Caltech reviews the candidates proposed by Nayo. Selected participants provide their own transportation and fit the Caltech classes into their broader high school schedules. Though their enrollment is limited to the three first-year math classes,

they have the same requirements and responsibilities as the Caltech students in those courses, and they receive a transcript upon completion for use in college applications. The high school students do not pay tuition fees.

"We are very excited about this collaboration with Caltech for our students," Nayo says. "This opportunity directly addresses a need that they have expressed."

—Ann Motrunich

Origins

A Dash of Caltech's Culinary History

Nestled deep in the shelves of Caltech's Archives and Special Collections, amid volumes dedicated to particle physics and molecular biology, sits a recipe collection. The culinary trove, belonging to the Tolman and Bacher families, is an heirloom that serves up a plate of Caltech history and recalls a slice of time when entertaining was a science of its own. The collection also provides insight into the lives of these two families that helped shape the Institute and American history.

The recipes span from 1925 to the 1950s and represent a snapshot of American 20th-century flavors, ingredients, and cooking methods. Richard and Ruth Tolman and Jean and Robert Bacher were avid hosts, and the home on Caltech's campus first occupied by the Tolmans and later by the Bachers was the site of decades of gatherings and dinner parties attended by many of the Institute's (and the world's) preeminent scientists. Parties hosted by the Bachers were reminiscent of potluck gatherings at the home of J. Robert and Kitty Oppenheimer in Los Alamos, New Mexico, during the Manhattan Project, said Shirley Gray, wife of Harry Gray, Caltech's Arnold O. Beckman Professor of Chemistry and founding director of the Beckman Institute, in a 1991 introduction to the recipe collection in the Archives.

Notable guests at the house included Albert Einstein, who had a Thanksgiving meal with the Tolmans. Robert Oppenheimer often stayed in the guest house during the 1930s, a decade in which he split his time between Caltech and UC Berkeley.

The house, which sits at 345 S. Michigan Ave., was built in 1925 for the Tolmans. Richard Tolman, a physicist and chemist, served as dean



of the graduate school and was the scientific host to Einstein during the famed physicist's visits to Caltech in the early 1930s. Richard also served as scientific advisor to US Army Gen. Leslie Groves, director of the Manhattan Project. One of the first graduate students Richard recruited to Caltech was Arnold O. Beckman (PhD '28), a former Caltech chemistry professor, Board chair, and an Institute benefactor.

Robert Bacher, a former Caltech physics professor who also served as the Institute's vice president and as its first provost, came to Caltech in 1949 after working with Robert Oppenheimer on the Manhattan Project as head of the experimental physics division and then the bomb physics department.

During construction of the Beckman Institute in the 1980s, Caltech purchased the house from Robert Bacher. Shirley Gray had been friends with Beckman's wife, Mabel Beckman, until Mabel's death in 1989. Shirley knew about the recipes and collected them in 1991. "I thought visitors to the Tolman House would like to try the recipes, so I put them together to make them accessible to all and revive a bit of Caltech's history," Shirley says. "After all, the house had a kitchen, so why not use it!" One Caltech guest who stayed in the house and tried some of the recipes was Nobel Laureate Pierre-Gilles de Gennes.



There are around 150 recipes from Tolman and Bacher in the collection, including many from Jean Bacher's mother, Byrd Fox Bacher. The handwritten instructions are organized in binders, folders, composition notebooks, and even envelopes from the WWII-era National Defense Research Committee. Other recipes are clipped from newspapers, magazines, and catalogs. Among them are dishes such as white layer cake, oyster salad, lemon souffle, and "yum-yum pudding."

Above is a handwritten recipe for spaghetti sauce—one that was used and loved, if the drips, splatters, and smudges on the worn page are any indication.

—Sharon Kaplan

To see the written recipes online, visit

