

## Do Talk to Strangers: Explore Pasadena

NOELLE DAVIS  
RONA YU  
Page Editors

We're squatting on the sidewalk looking up to a drunk man on a bench. Everything he owns is beside him: what we see is all he has. As he twirls a bottle of liquor and puffs a cigarette, he claims he doesn't drink or smoke--but needs medicine to keep him from going "out of my mind." He tried to buy a house three times, but was "ripped off" by "them" again and again. As we wait to hear who "they" were, cars whiz by and drown out his voice. When a red light silences

the roar, we ask about his greatest worries, eyeing his glass bottle and wondering whether we're being brave or stupid. He rambles about characters from *The Maze Runner* and *Terminator*, who "just about wiped out the whole world." Strange, but harmless.

We ended up breaking the stranger-danger rule sixteen other times that day. Many experiences were uncomfortable. We awkwardly shuffled away when a woman quickly decided she didn't want to talk with us anymore. A man bluntly told us that he doubted we would use his words for a good purpose. One woman sitting

outside a church simply hung her head and didn't respond.

Others, like the drunk man, were intimidating. Discussing sensitive, personal topics with a woman who bitterly recounted her experiences in prison was admittedly unnerving. It's not every day that you speak with someone who has been arrested, let alone behind bars. The line between probing for meaningful information and going too far is a delicate one. Am I allowed to ask her what she got arrested for? What if I find out it's for something terrible; will I be able to hide the fact that I'm terrified? Does she

feel like I'm only talking with her because she looks needy?

But often buried under unwelcoming expressions were fresh perspectives. We giggled as we met the "Smile Lady" who lives on the "cleanest and happiest corner in Pasadena," and pulled out a broom and dustpan to prove it. We didn't know whether to laugh or cry when a man joked, "My brain is too small for me to be happy." We felt less heroic when one homeless man with a wrinkled face told us he gets many requests for interviews and pictures.

While it was relieving to find out that a person we'd approached was

happy to chat, those who held back at first would let go more, if they did at all. It was vulnerability, not quantity of information, that made a conversation meaningful. Often, the people who believed they couldn't contribute anything were the ones whose perspectives made us think. We encountered issues we had only read about in books. Awkward, shallow questions escalated to personal conversations about politics, addiction, religion, and abuse, which will be covered in future articles.



Photos Courtesy of Noelle Davis and Rona Yu

### VICE PROVOST'S OFFICE HOURS

Vice Provost, Chief Diversity Officer, and Professor of English, Cindy Weinstein, offers weekly office hours. This is an opportunity for undergraduate, graduate students, and postdocs to meet and discuss topics pertaining to the Council on Undergraduate Education; Caltech accreditation; the Staff and Faculty Consultation Center; Student-Faculty Programs; the Center for Teaching, Learning and Outreach; the Caltech Diversity Center; and the Libraries. There are four 15-minute appointments available per hour. Please sign up in Parsons-Gates room 104, or call the Vice Provost's Office at ext. 6339.

*Student Office Hours for Winter Term 2017:*

1/27/17 Friday 11:00 a.m.-12:00 p.m. - 2/2/17 Thursday 11:00 a.m.-12:00 p.m. - 2/8/17 Wednesday 10:00 a.m.-11:00 a.m.

2/14/17 Tuesday 10:00-11:00 a.m. - 2/22/17 Wednesday 10:00-11:00 a.m. - 3/2/17 Thursday 12:00-1:00 p.m.

3/13/17 Monday 10:00-11:00 a.m.

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## Caltech Y Column

### CALTECH Y

The Caltech Y Column serves to inform students of upcoming events and volunteer opportunities. The list is compiled by Katherine Guo from information given by the Caltech Y and its student leaders.

Founded by students in 1916, the Y was organized to provide extracurricular activities planned and implemented by students as an opportunity to learn leadership skills and discover themselves. The mission of today's Y remains the same—to provide opportunities that will prepare students to become engaged, responsible citizens of the world. The Y seeks to broaden students' worldviews, raise social, ethical, and cultural awareness through teamwork, community engagement, activism, and leadership. More information about the Caltech Y and its programs can be found at <https://caltechy.org>. The office is located at 505 S. Wilson Avenue.

Ongoing and past programs hosted by the Caltech Y:

Alternative Spring Breaks: Peru, Costa Rica, New York, Yosemite, San Diego, San Francisco

Make-A-Difference Day: Hillside Home for Children, LA County Arboretum and Botanic Garden, Children's Hospital Los Angeles (Coachart), Eaton Canyon, Lifeline for Pets

Explore LA: Lakers game, Next to Normal musical, Norton Simon Museum trip

RISE Tutoring program (an afterschool math and science-focused tutoring program that serves public school students between grades 8 and 12)

### Upcoming Events

**1. The Caltech Y Social Activism Speaker Series (SASS), Caltech Center for Diversity and Caltech Feminist Club present: Trafficking, Technology and Data-Driven Justice with Dr. Jennifer Musto**

Thursday | January 26 | 12:00 to 1:00 pm | Center for Student Services 2nd Floor Common Area | Lunch is provided (spaces are limited)

RSVP: <https://goo.gl/forms/Zoiu8e5LtgQ5l7uh2>

In this presentation, Professor Musto will draw upon chapter excerpts from her book *Control and Protect: Collaboration, Carceral Protection, and Domestic Sex Trafficking in the United States* (University of California Press, 2016) to describe how technology in general and data-driven innovations in particular are being leveraged to respond to human trafficking in the United States. In addition to highlighting how tech-oriented interventions blur the boundaries between state and non-state anti-trafficking activities, this talk will draw attention to some of the risks that accompany these projects and consider how they might be reimagined to better support people who have been in exploitative trafficking and labor situations. A cash-only book signing will follow the event.

Jennifer Musto is an Assistant Professor of Women's and Gender Studies at Wellesley College where she teaches courses on gender, sexuality, race, technology, neoliberalism, and globalization. She has lectured widely on the laws, policies, and technologies designed to respond to human trafficking.

### 2. Hathaway Sycamores

Every Wednesday | 5:30 - 8:00 PM | Highland Park

Volunteer at Hathaway Sycamores, a group that supports local underprivileged but motivated high school students. There are a variety of ages and subjects being tutored. The service trip includes about an hour of travel time and 1.5 hours of tutoring. Transportation is included.

For more info and to RSVP email Sherwood Richers at [srichers@tapir.caltech.edu](mailto:srichers@tapir.caltech.edu). Eligible for Federal Work Study.

### 3. Pasadena LEARNS

Every Friday | 3:00 - 5:00 PM | Pasadena

Come volunteer at Madison and Jackson Elementary School! We are partnered with the Pasadena LEARNS program and work with their Science Olympiad team or do regular tutoring along with occasional hands-on science experiments. Transportation is provided. For more information and to RSVP, contact [azhai@caltech.edu](mailto:azhai@caltech.edu). Eligible for Federal Work Study.

### Beyond the Y

**1. Rev. William Barber, President of the North Carolina NAACP**

Wednesday | February 1 | 7:00 pm | Thorne Hall - Occidental College in Eagle Rock | Free

Oxy Facebook event page: <https://www.facebook.com/events/648332075331014>

Rev. Barber is the president of the North Carolina NAACP and leader of the Moral Monday movement, a multi-racial, multi-generational interfaith movement that has led protests at the NC General Assembly around issues of injustice, including voting rights, gun violence, immigration reform, school funding, LGBT rights, the minimum wage and workers' rights, and others. Hundreds of activists, including Dr. Barber himself, have also engaged in non-violent civil disobedience to expose what the politicians in North Carolina are trying to do in the dark.

The event is sponsored by Occidental College and several student groups and cosponsored by the Southern Christian Leadership Conference, Clergy and Laity United for Economic Justice, the Coalition for Humane Immigrant Rights in LA, the LA Alliance for a New Economy, the LA County Federation of Labor, the Black Worker Center, and LA Voice. Martin Luther King spoke in Thorne Hall in April 1967, 50 years before Rev. Barber's talk.

Rev. Barber's speech to the Democratic convention last summer made headlines around the world. If you weren't able to see it then, here's a link to that speech: <https://www.youtube.com/watch?v=aw3PUghqIAA>

### 2. Science Fair Judges Needed

February 6th - 9th | 9:00 AM - 2:30 PM (Flexible Hours) | Glendale, Ca

Volunteer judges are needed for Franklin Magnet School Science Fair in Glendale. Transportation available and we will feed you too! Graduate students preferred but all welcome to apply.

The times are flexible and you don't have to be present for the whole time slot. We are in need of 12 volunteers to judge our students' projects/submissions. Ideally these volunteers will have a solid background in science and/or currently work in a science-related field. Another preference is that the volunteers not be related to any children at our school to ensure impartiality when awarding prizes.

Please let me know as soon as possible if you or any of your colleagues would be willing to commit to this awesome event that fosters a love of science in our youth. Please email Mary at [mbehar@gmail.com](mailto:mbehar@gmail.com)

## Caltechlive!

Wednesday, February 1, 2017 • 8 PM

**EARNEST C. WATSON**  
LECTURE SERIES

### WHAT ARE GLASSES?: ATOMIC ORGANIZATION AND THE PRICE OF NONCONFORMITY



**WILLIAM JOHNSON**

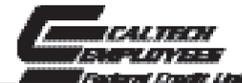
RUBEN F. & DONNA METTLER PROFESSOR OF  
ENGINEERING & APPLIED SCIENCE, CALTECH

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immediately if interested! Time is running short. Compensation will be in the form of a free lunch on the day(s) of service, networking with other scientists and the joy of having volunteered.

We are also open to any donated prizes you think elementary school-age children might want for first, second, third prize and honorary mentions.

## Deans' Advisory Council

**NIKITA SIROHI**  
Contributing Writer

The Deans' Advisory Council was created to provide an additional opportunity for the Caltech Deans to receive feedback and to discuss issues of concern with students from a variety of backgrounds. As it's currently only in its third year and as such might not immediately come to mind, the purpose of this article is to (re) introduce the council and its purpose; to list the council members; and to remind students, staff, and faculty that the Deans' Advisory Council (DAC) is a resource available to them if need be.

The group often serves as a sounding board for the Deans' on topics of concern, and is also responsible for relaying any concerns brought forward to individual group members by their peers or by others affiliated by Caltech. Students and staff should feel more than free to discuss current campus issues with any member of the Council, and to bring up concerns to the Council relating to any aspect of student life. Some past topics have included the alcohol policy, the independent studies program, the varying graduation rates between houses, and campus security.

The current members of the DAC are (all emails are @caltech.edu):

Andrew Montequin (Sr, Bioengineering, Ricketts, amontequin)

Kate Evans (Sr, Geobiology, Blacker, kevans)

Ricky Galliani (Sr, Computer Science, Fleming, pgalliani)

Jenny He (Sr, Chemistry, Avery, jhe)

Olivia Hinderer (Jr, Biology, Avery, ohinderer)

Ted Hu (Sr, Electrical Engineering, Ruddock, thud)

Stephanie Huard (Jr, Biology, Ruddock, shuard)

Netgie Laguerre (Sr, Chemistry, Dabney, nlaguerre)

Tim Liu (Jr, Electrical Engineering, Ruddock, tsliu)

Lilly Luo (Sr, Applied and Computational Mathematics, Fleming, lluo)

Daniel Molina (Jr, Physics, Page, dmmolina)

Carly Robison (Jr, Computer Science, Blacker, crobison)

Jeff Rosenberg (Sr, Chemistry, Blacker/Ricketts, jrosenbe)

Alex Ryan (Sr, Computer Science, Ruddock, atryan)

Bobby Sanchez (Sr, Geophysics, Lloyd, rmsanche)

Nikita Sirohi (Sr, Computer Science, Ruddock, nsirohi)

Kristie Yu (Sr, Biology, Lloyd, kbyu)

# Caltech Social Issues

PAUL DIETERLE  
Contributing Writer

I came to Caltech from a high school with both deep-seeded racial disparities and uniformly positive relationships between white students and students of color. This may seem paradoxical, but it wasn't. Sure, there were discussions between parents and administrators that cut along racial lines, but the relationships between students were positive -- even constructive. When Trayvon Martin was killed in the winter of 2012, both black and white students staged a walk out. Looking back, it's obvious why race relations -- for lack of a better term -- were so positive: the teachers and administrators encouraged and initiated a constant dialogue.

The same, I'm sorry to say, cannot be said for Caltech. Let me be clear: Caltech is neither socially regressive nor progressive. The demands that Caltech places on students are such that students' primary concern is finishing problem sets, not discussing social

issues in a semi-public forum. But if part of Caltech's task is to take students from a variety of backgrounds and provide both a scientific and social education, then the institute has clearly failed at the latter. In my experience, the main location for discussing complex social issues are house email lists and facebook -- woo technology. Such discussions can augment a larger, in-person conversation but they will never suffice on their own.

Yet, even in light of the above, is it clear that the status quo causes problems? It is. At the very least, the awkwardness with which Caltech students discuss race and other social issues indicates that to many of us, such conversations are infrequent. Moreover, there is a small but non-negligible number of students who have anachronistic (to put it politely) views -- particularly relating to race and gender -- and could benefit from an open dialogue. It's also worth considering that conversation is a form of mental exercise and that failure to discuss difficult social problems can lead to an erosion of

values; indeed, during my time at Caltech, I have thought and spoken along racial lines in ways that I never did before.

Clearly, providing a social education is difficult and tenuous, but there is a clear administrative benefit to doing so since race and gender are intimately tied to questions about diversity in academic institutions. Additionally, intensive non-scientific discussion and debate help break the monotony of equation solving and code writing that I believe tarnishes students' opinion of Caltech and leads to low alumni donation rates. Hence, it is clearly in the best interest of the Institute to provide a continuous and inclusive social dialogue.

The question then becomes one of implementation -- how do we initiate these changes? To be sure, there are a number of laudable organizations on campus that concern themselves with social issues -- these include the Title IX Committee and the Diversity Center among others. However, these organizations are not wide

enough in scope and don't capture enough student participation to be the lone change-makers. Title IX, for instance, represents a federally mandated minimum set of guidelines that a school must follow in order to guard against overt discrimination. Thus, unless we believe this minimum is also the best we can hope for, Caltech must have its own initiatives that act in parallel.

Because student bandwidth is largely saturated by the classroom workload, it's logical to explore the curriculum as a vehicle for social education. In particular, I believe that Caltech (with heavy involvement by the Diversity Center and others) must undertake a rebuilding of the humanities curriculum, since these classes provide the perfect vehicle for conversation about social issues. My experience tells me that Caltech students like discussing social problems, but mostly dislike social science and humanities classes; in that case, why not add more of the former to the latter? It is true that smaller humanities classes already

encourage conversation, but in my experience the discussions tend to be text-centric and often lose track of larger social narratives. An ideal curriculum would allow students to engage with faculty members who are professionally interested in relevant issues like voter fraud, school budgets, and historical attitudes about race.

Finally, as students and alumni, we must own our part of the problem. We should strive to be active participants in our classrooms and houses while at the same time endeavoring to move beyond these familiar (but artificial) social constructs. There are interesting perspectives to be had from administrators, faculty members, and students in every corner of campus. The best student advocates already talk to these people, but this strategy must be adopted more widely if we are to have a meaningful impact on our own educational environment.

## New Caltech Instrument Poised to Image the Cosmic Web

WHITNEY CLAVIN  
Caltech Media Relations

*This article is adapted from a story that was originally published online at caltech.edu.*

An instrument designed to image the vast web of gas that connects galaxies in the universe shipped early this morning, Jan. 12, from Los Angeles to Hawaii, where it will be integrated into the W. M. Keck Observatory.

The instrument, called the Keck Cosmic Web Imager, or KCWI, was designed and built by a team at Caltech led by Professor of Physics Christopher Martin. It will be one of the best instruments in the world for taking spectral images of cosmic objects—detailed images where each pixel can be viewed in all wavelengths of visible light. Such high-resolution spectral information will enable astronomers to study the compositions, velocities, and masses of many objects, such as stars and galaxies, in ways that were not possible before.

One of KCWI's main goals, and a passion of Martin's for the past 30 years, is to answer the question: What is the gas around galaxies doing?

"For decades, astronomers have demonstrated that galaxies evolve. Now we're trying to figure out how and why," says Martin. "We know the gas around galaxies is ultimately fueling them, but it is so faint—we still haven't been able to get a close look at it and understand how this process works."

Martin and his team study what is called the cosmic web—a vast network of streams of gas between galaxies. Recently, the scientists have found evidence supporting

what is called the cold flow model, in which this gas funnels into the cores of galaxies, where it condenses and forms new stars. Researchers had predicted that the gas filaments would first flow into a large ring-like structure around the galaxy before spiraling into it—and this is exactly what Martin and his team found in 2015 using the Palomar Cosmic Web Imager, a precursor to KCWI, at Caltech's Palomar Observatory near San Diego.

"We measured the kinematics, or motion, of the gas around a galaxy and found a very large rotating disk connected to a gas filament," says Martin. "It was the smoking gun for the cold flow model."

With KCWI, the researchers will get a closer look at the gas filaments and ring-like structures around galaxies that range from 10 to 12 billion light-years away, an era when our universe was roughly 2 to 4 billion years old. Not only can KCWI take more detailed pictures than the Palomar Cosmic Web Imager, it has other advances such as better mirror coatings. The combination of these improvements with the fact that KCWI is being installed at one of the twin 10-meter Keck telescopes—the world's largest observatory with some of the darkest known skies on Earth—means that KCWI will have an improved performance by more than an order of magnitude over the Palomar Cosmic Web Imager.

KCWI will map the gas flowing from the intergalactic medium—the space between galaxies—into many young galaxies, revealing, for the first time, the dominant mode of galaxy formation in the early universe. The instrument will also search for supergalactic winds from galaxies that drive gas back

into the intergalactic medium. How gas flows into and out of forming galaxies is the central open question in the formation of cosmic structures.

"We designed KCWI to study very dim and diffuse objects, our main emphasis being on the wispy cosmic web and the interactions of galaxies with their surroundings," says Mateusz (Matt) Matuszewski, the instrument scientist for the project.

KCWI is also designed to be more a general-purpose instrument than the Palomar's Cosmic Web Imager, which is mainly for studies of the cosmic web. It will study everything from gas jets around young stars to the winds of dead stars and supermassive black holes and more. "The instrument is really versatile," says Matuszewski. "Observers can configure the optics to adjust the spatial and spectral scales and resolutions to suit their interests."

### The nuts and bolts of KCWI

Scientists and engineers have been busy assembling the highly complex elements of the KCWI instrument at Caltech since 2012. The instrument is about the size of an ice cream truck and weighs over 4,000 kilograms.

A core feature of KCWI is its ability to capture spectral information about objects, such as galaxies, across a wide image. Typically, astronomers capture spectra using instruments called spectrographs, which have narrow slit-shaped windows. The spectrograph breaks apart light from the slit into each of the colors making up the target object, just like a prism that spreads light into a rainbow. But traditional

spectrographs cannot capture spectral information across an entire image.

"Traditional spectrographs use multiple small slits to capture many stars or the cores of many galaxies," says Martin. "Now, we want to look at features that are extended across the sky, such as stellar jets and galaxies, which have complex structures, velocities, and gas flows. If you can only look through a slit, you can only see a small part of what is going on. But we want to see the whole picture. That's why we need an imaging spectrograph, a device that gives you an image for every single wavelength across a wide view."

To create a spectrograph that can image more extended objects like galaxies, KCWI uses what is called an integral field design, which basically divides an image up into 24 slits, and gathers all the spectral information at once.

"If you're looking at something big in the sky, it's inefficient to just have one slit and step your way across that object, so an integral field spectrograph combines a number of slit-shaped mirrors together across a continuous field of view," says Patrick Morrissey, the project scientist for KCWI who now works at JPL. "Imagine looking into a broken mirror—the reflected image is shifted around depending on the angles of the pieces. This is how the integral field spectrograph works. A series of mirrors works together to make a square-shaped stack of slits across an image appear as a single traditional vertical slit."

KCWI has the highest spectral resolution of any integral field spectrograph, which means it can better break apart the rainbow of light to see more colors, or

wavelengths. The first phase of the instrument, now on its way to Keck, covers the blue side of the visible spectrum, spanning wavelength ranges from 3,500 to 5,600 angstroms. A second phase, extending coverage to the red side of the spectrum, out to 10,400 Angstroms, will be built next.

### KCWI to Climb Mauna Kea

After KCWI arrives in Hawaii on January 18, engineers will guide it up to the top of Mauna Kea, where Keck is perched. A series of checkout and alignment tests is planned, and will be followed in a few months by the first observations through the Keck telescope.

"There are train tracks around the telescope where the instruments are installed," says Morrissey. "It's like one of those old railroad roundhouses where the train would come in and they would spin it to an available space for storage. The telescope turns around, points to the instrument that the astronomer wants to use, and then they roll that instrument on. Soon KCWI will become part of the telescope."

KCWI is funded by the National Science Foundation, through the Association of Universities for Research in Astronomy (AURA) program, and by the Heising-Simons Foundation, the W.M. Keck Foundation, the Caltech Division of Physics, Mathematics and Astronomy, the Caltech Optical Observatories and the California Association for Research in Astronomy (CARA). JPL participated in the management of the project.

# Join the Meditation Mob!

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Mailing list and MP3 archive:  
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## Nasser Al-Rayes Named SCIAC Athlete of the Week

GOCALTECH.COM  
Actual Sports Content Editor

Pasadena, Calif. (Jan. 23, 2016) - Caltech, Men's Basketball Senior Nasser Al-Rayes (Doha, Qatar/ American School of Doha) has been named SCIAC Male Athlete of the Week for Jan. 23.

Al-Rayes was crucial to Caltech's upset of second-ranked La Verne on Saturday with an all-around box score of 10 points, nine rebounds, three assists, two blocks and a steal. He averaged a double-double with 13.0 points and 10.5 rebounds per game over the

week's two game slate thanks to a 16-point, 12-rebound game along with three blocks at third-place Pomona-Pitzer. The senior had just three turnovers while shooting 50 percent from the field and 57 percent from inside the arc.

Al-Rayes is the first Men's Basketball player to be recognized with the honor this season.

Follow and show support for your Caltech Beavers on Twitter, Instagram (@CaltechBeavers), Facebook, and Youtube.



"We mean mug, Mo' Thugs // Trained to be perfect disciples"

—gocaltech.com and The Notorious B.I.G.

## Percin Sharp Against Whittier

GOCALTECH.COM  
Actual Sports Content Editor

PASADENA (Jan. 21, 2017) – Sophomore Brittany Percin (Lake Tahoe, Calif. / Stanford Online) won every event she participated in against visiting Whittier College in Saturday's SCIAC dual meet.

A Caltech record holder in eight different events, Percin kicked off her day by winning the women's 200-yard freestyle, clocking in at two minutes, one-and-a-half seconds. She then won the 100-yard butterfly (1:00.82) before anchoring the winning 400-yard freestyle relay team, which also consisted of freshman Tzarina Shippee (San Diego, Calif. / La Jolla), freshman Angelina Pan (Toronto, Canada / Havergal College) and sophomore Gemma Takahashi (San Jose, Calif. / Leland). The same combination of women broke the school record in the 200-yard

freestyle relay on week prior and managed to edge Whittier's top team in the 400-yard relay by just over two-tenths of a second.

Takahashi also had herself a day, winning the 100-yard freestyle (56.51) and finishing just over one-third of a second off of first place in the 50-yard freestyle (26.18). Pan, meanwhile finished just behind Percin in the 200-yard freestyle (2:04.25). Senior Zofii Kaczmarek (New York, N.Y. / Stuyvesant) took second place finishes in both the one and three-meter diving events. In spite of the Beavers' best efforts Whittier won the meet 155-64.

Head Coach Paul Hughes and the Beavers will be back at it again when they travel to Claremont-Mudd-Scripps Colleges to take on CMS and California Lutheran College next Saturday at 10:30 a.m.



...Percin-ly sharp...

—gocaltech.com, unfortunately not The Notorious B.I.G.

## Lewis Goes Off in 4OT SCIAC Thriller

GOCALTECH.COM  
Actual Sports Content Editor

LA VERNE, Calif. (Jan. 21, 2017) – It's not often record-setting performances happen in defeat, though quadruple-overtime basketball games might be even rarer. Yet that's exactly how Saturday's SCIAC women's basketball game played for out for Caltech at the University of La Verne as senior Kate Lewis (San Antonio, Texas / Ronald Reagan) had the game of her career in the Beavers' 100-98 quadruple overtime loss to the Leopards.

The forward contributed a career-best 32 points to the Beavers' team total, which set a program record in SCIAC-only play and tied the all-time record. Lewis shot 14-for-22 from the field and did most of her damage in the fourth quarter, when the Beavers roared back from a nine-point deficit after trailing for the majority of the game to force overtime. She scored 15 points in that span and pulled down nine rebounds to go with five assists and one block.

Lewis was not the only Beaver to make the most of the extra time. Freshman guard tandem Samantha D'Costa (San Jose, Calif. / St. Francis) and Grace Peng (San Ramon, Calif. / California), like Lewis, spent nearly a full hour on the court relentlessly slashing to the basket and churning out points to help keep their team afloat. D'Costa finished the game with 25 points while Peng came away with 23; this marks the second time in the last two seasons the Beavers have had three players with at least 20 points in one game. The last time Caltech accomplished the feat came against Crossroads College in December 2015, when then-freshman Elizabeth Eiden (White Plains, N.Y. / Holy Child) led the way with 25 points. The sophomore also did her part Saturday, leading the team with 10

rebounds to go with six points. Meanwhile, freshman guard Jieni Li (Shanghai, China / Shanghai Jiao Tong Univ.) scored her first basket of the season coming off the bench.

Caltech started the game slow with just seven first-quarter points, but began to catch fire in the second half before exploding for 25 points in the fourth quarter to force overtime. The two teams traded baskets in the first overtime before a Bailey Kurahashi foul sent D'Costa to the line with a chance to give Caltech a late lead. The freshman made one of her two free throws, however, to send the game to double overtime.

Though Caltech led by as many as six points in the second overtime, this time the Leopards came charging back, scoring six points on three free throws and a trey in a one-minute span. Neither team scored in the period's final 82 seconds, with the Beavers missing a pair of free throws and a layup but containing a ULV second-chance opportunity to bring about triple

overtime. Each team led by two at one point in the period before Lewis hit a layup to tie the game at 87 and force a fourth overtime as Peng's potential game-winner clanked off the rim.

The fourth overtime contained as many points as the second and third combined. However, the Leopards remained one step ahead of the Beavers throughout the final five minutes. Caltech did give itself a chance to force a fifth overtime when sophomore Alexa Lauinger (Ortonville, Mich. / Brandon) was able to commit a quick foul and send ULV's Noelle Cobb to the line after Peng brought the Beavers within one on a pair of free throws

with six seconds left. Cobb made just one of her two attempts, providing the Beavers just over five seconds to move the ball down the court and tie the game, but D'Costa ultimately missed a game-tying layup at the buzzer to bring an end to the longest game the Beavers have played on record.

Head Coach Sandra Marbut and the Beavers will get a few days to rest before they return at home against Chapman University (8-8 overall, 5-2 SCIAC) this Wednesday, Jan. 25 at 7 p.m.



"Armed and dangerous // Ain't too many can bang with us"

—gocaltech.com and The Notorious B.I.G.

## Counseling Center Groups and Workshops

### Winter Term 2017

The counseling center is excited to announce our workshops for the Winter term:

#### Workshops

**Catalyst:** A 3-week workshop teaching general coping skills

**Refresh:** A 1-hour workshop teaching how to get better sleep

**Emotion Lab:** A 1-hour workshop to recognize your emotions better

**Spark:** A 1-hour workshop to cope with procrastination and work avoidance.

#### Groups

**Social Confidence:** A 7-week week group for anyone who'd like to be more comfortable and less anxious in social situations. Pre-screening required; see the webpage for more information. Begins 1/23.

**Mindfully Resilient:** An 8-week group focused on reducing the risk of relapse for depression and anxiety. Pre-screening required; see the webpage for more information. Begins 1/12.

For the full list of workshops, dates, and times, visit:

**[counseling.caltech.edu](http://counseling.caltech.edu)**

and follow the link to the new classes and workshops.

## ASCIT Minutes

Meetings are every week in SAC 13

### ASCIT Board of Directors Meeting

Minutes for 19 January 2017. Taken by Alice Zhai.

**Officers Present:** Tim Liu, Bobby Sanchez, Kalyn Chang, Robin Brown, Alice Zhai

**Guests:** Sean McKenna, David Berger Maneiro

**Call to Order:** 12:18pm

### President's Report (Andrew):

- Absent

### Officer's Reports:

#### V.P. of Academic Affairs (ARC Chair: Tim):

- SFC is on February 1st
- Considering creating a new committee to improve the registration process and class selection

#### V.P. of Non-Academic Affairs (IHC Chair: Bobby):

- Poor turnout at the first town hall meeting
- IHC is working on a rotation survey

#### Director of Operations (Sakthi):

- Absent

#### Treasurer (Kalyn):

- Fleming House asked for ASCIT funding for Techstock 2017
- [treas@donut.caltech.edu](mailto:treas@donut.caltech.edu) does not work, so to contact the treasurer use [kcchang@caltech.edu](mailto:kcchang@caltech.edu)

#### Social Director (Robin):

- Winter Carnival is happening on February 11th
- Need to start planning Be a Kid Again Day

#### Secretary (Alice):

- Nothing to report

If anyone has any questions or concerns about a section of the minutes please email the appropriate officer. We are happy to answer any questions.

**Meeting Adjourned:** 12:47pm

### WRITE FOR THE CALIFORNIA TECH!

WE ACCEPT REVIEWS, OPINION PIECES, RESEARCH, NEWS STORIES,  
COMICS, AND MORE!

WE PAY FOR SUBMISSIONS, SO JOIN THE STAFF TODAY!

EMAIL [TECH@CALTECH.EDU](mailto:TECH@CALTECH.EDU) WITH QUESTIONS.

## Crossword

### Across

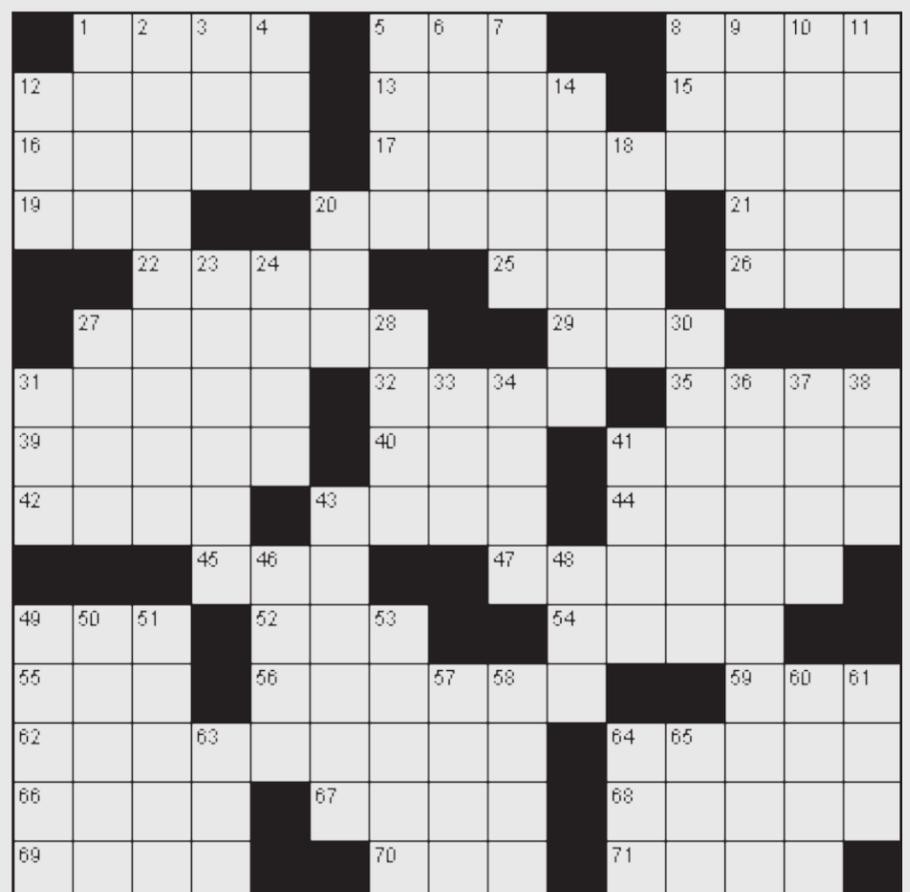
- Affirm solemnly
- Part of a circle
- Successor
- Musical drama
- Close
- Exhort
- Guide
- Large spider
- Golf peg
- Buccaneer
- Seed case
- Speck
- Draw
- Small dog breed
- Excusable
- Lyric poem
- Wash off soap
- Symbol
- Flat-bottomed boat
- Become liable to
- Water soaked soil
- Bakery item
- Beverage
- In bed
- Unit of weight
- Outward flow
- Smear
- Jurisprudence
- Epoch
- Succulent
- Strong elastic wood
- Inform
- Hard-shelled seed
- Close observer
- Speak up
- Oracle

### Down

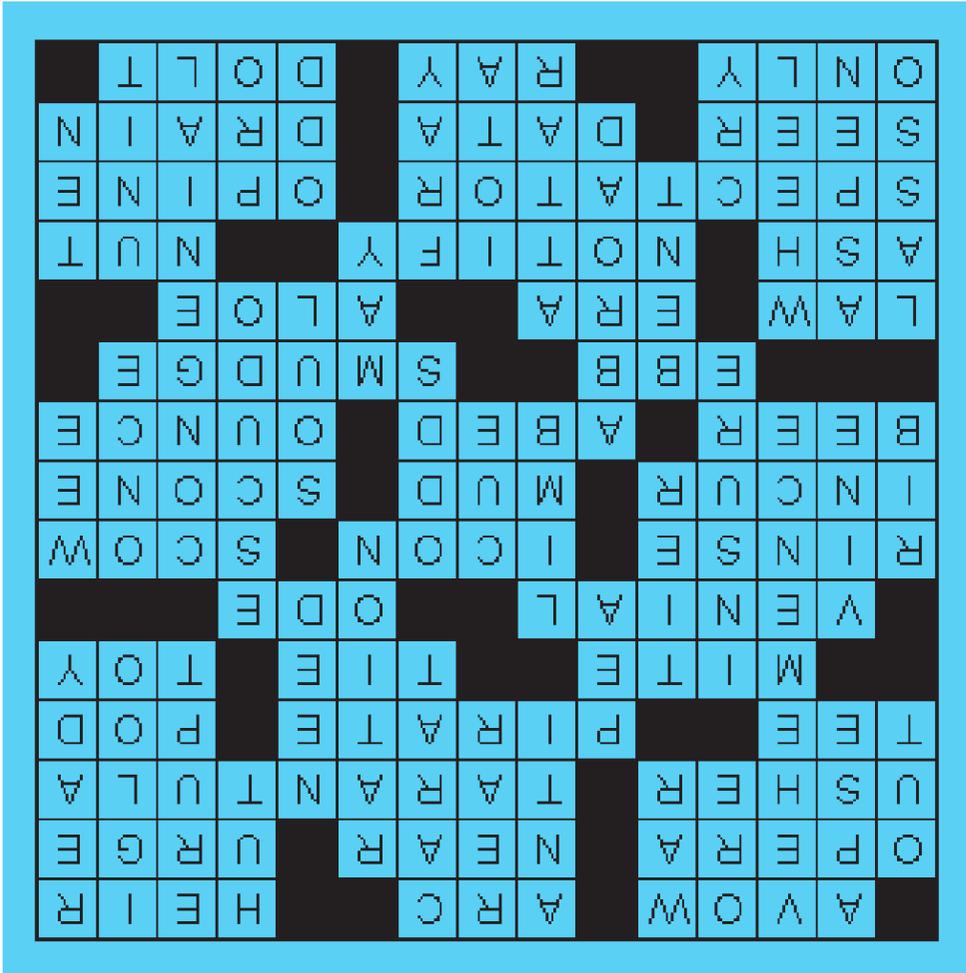
- Part of a church
- Intensity of expression
- Metal-bearing mineral
- Armed conflict
- Not in favor of
- Raise or bring up
- Unit of weight for precious stones
- Shack
- Burst out
- Ice hut
- Poised for action
- Away from home
- An allotted fixed portion
- Anything necessary but lacking
- Leguminous plant
- Underwrite
- Grade or level
- Climbing or creeping plant
- Tree branch
- Former currency of Portugal
- Cut of meat
- Pool stick
- Betting ratio
- Suitable to your

### needs

- On one occasion
- Very small
- Music genre
- Overseas
- Formed a curve
- Month of the year
- Lariat
- Poplar tree
- Steering device
- Essential oil or perfume from flowers
- Scintilla
- Wear away by rubbing
- Component part
- Decimal base
- Weep
- Peculiar
- In favor of



Answers to current crossword (pg 7)



-<http://puzzlechoice.com>

*The California Tech*

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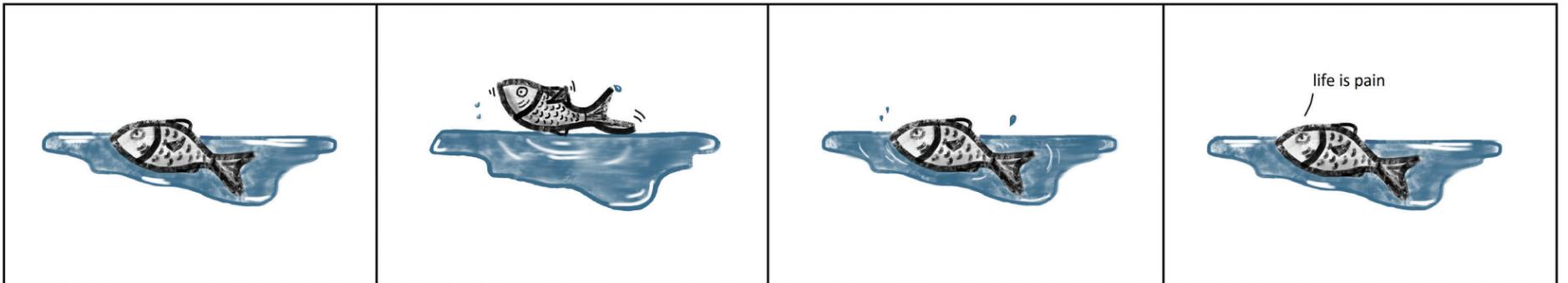
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