

On November 5, 15 high school students (five individuals, and five teams of two) from California, Texas, and Hawaii met at Caltech to compete in the Regional Siemens Competition in Math, Science and Technology for Region 1. Among the projects featured were explorations into anti-cancer drugs, improvements in catalytic mechanisms, and a model to predict alcohol dependence. The individual winner (left) was Angela Zhang, who devised a method to precisely release gold and iron oxide-based nanoparticles to combat cancer stem cells. The winning team (right) was composed of Jeffrey Ling and Helen Jiang, who looked into ways to diagnose and predict the progression of Necrotizing Enterocolitis (NEC) in infants.

- Anya Grottel-Brown

## iGEM team heads to Boston for championship

**SANDHYA CHANDRASEKARAN**  
News Editor

During the weekend of November 5, Caltech's iGEM team competed in the World Championship Jamboree in Boston along with a select few other top colleges spanning many different countries.

iGEM is the synthetic biology International Genetically Engineered Machine Competition.

Students spend their summer using a kit of standard genetic-engineering parts, as well as parts they create themselves, to build

biological systems and operate them in living cells.

The competitions are divided into a Regional Jamboree, from October 14-16, and the World Championship Jamboree, from November 4-7. The Caltech iGEM team won a gold medal in the regional jamboree, which earned them the invitation to the prestigious second part of the competition.

This year's team was composed of a much younger set of members than other iGEM teams.

Captain Senior Nicole Thadani led a group of four sophomores: Amanda Shelton, Julia Brown, and Puikui Cheng from Caltech and Ashley Su from CSULA.

iGEM fosters a multidisciplinary approach to tackling research projects.

In fact, Caltech's iGEM is composed of students from a variety of fields.

Thadani is a bioengineering major, Su is majoring in biochemistry, Brown and Shelton are biologists, and Cheng is a mechanical engineer. Shelton explains, "[iGEM is for] anyone interested in using biology as a tool or material to build something or solve a problem."

"While it is primarily a bioengineering focus, a multidisciplinary approach would give the team an advantage in choosing and approaching a problem."

"Wet-work is important for actually creating the biological system, but the team is also required to keep a detailed and accessible wiki. Each team is encouraged to try modeling their system, to help make synthetic

biology more accessible and open, and to help the general public learn more about synthetic biology and related fields.

"A diversity of backgrounds will help the team compete in more areas of iGEM."

In addition to encouraging collaboration among different fields, iGEM also promotes independence and freethinking with respect to tackling the research project itself.

As Su points out, "This competition is unique in that it gives undergraduate teams an opportunity to propose their own idea and do research themselves under the guidance of mentors and advisors."

Brown elaborated, "We chose our project ourselves and had a large degree of independence in the way we went about solving it - our mentors were able to answer

questions for us, but we chose for ourselves which pathways we would follow and which methods we would use to do so."

Over the course of the fall and winter terms last year, the students met on a semi-regular basis, an average of one to two hours a week, to brainstorm project ideas and develop a plan to complete it within the SURF period.

With the guidance of some graduate students who advised the team from the previous year, the group eventually settled on the topic of endocrine-disruptor degradation.

In a nutshell, the team sought to "create a functional bioremediation system in E. coli to degrade one endocrine disrupting compound (EDC).

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## News briefs from around the globe

Helping readers burst out of the Caltech bubble

### Need to know

< **100** words about the world this week - topics sorted from good to bad

by Sam Barnett - links to full stories available at [barnett.caltech.edu/news](http://barnett.caltech.edu/news)

<b>Anti-aging research</b>	< <b>5%</b> of cells cause major aging effects - were eliminated in mice [NATURE]
<b>Groupon goes public</b>	\$ <b>12.8 billion</b> valuation implied - good sign for other companies [REUTERS]
<b>Greek debt deal</b>	€ <b>130 billion</b> controversial package - PM Papandreou will resign [CNN]
<b>Italian bond yields rise</b>	<b>6.4%</b> - highest since Italy adopted euro - fears about Italian credit [CNN]
<b>More protest violence</b>	<b>3</b> Occupy Wall Street protesters arrested for assaulting policemen [AFP]
<b>MF Global bankruptcy</b>	\$ <b>600 million</b> of customer funds still missing since firm collapsed [FORBES]
<b>Protesters killed in Syria</b>	<b>19</b> civilians killed by government forces - Arab League to meet soon [BBC]

## Food with Mannion!

*Do you like eating food?*

*How about free food at nice restaurants?*

*Ever want to tell the world exactly what you think of said food?*

*The Tech will be beginning a new column to chronicle the foodie experiences of new writers every other week... The Catch: They'll be going head-to-head with Tom Mannion who will be reviewing the same restaurant. If you have ever thought you were more of a gourmand than our resident master chef, now's your chance to prove it!*

*Email us for a spot on the list at [tech@caltech.edu](mailto:tech@caltech.edu)*

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**get paid up to \$30**

## CHILLAX – A relaxation group for stress management

Mondays 12-1; October 24 – November 28, Winnett Lounge

FREE

Health education and the counseling center are proud to sponsor a 6 week to educate and teach students how to manage their stress. The group will cover time management, muscle relaxation, getting great sleep, mindfulness meditation and dealing with holiday and exam related stress. Lunch is not provided but there will be participation prizes and giveaways.

**November 7** - Are you low on ZZZZZZZ's? If so, Monday's stress management group is just for you! Come hear the ins and outs of how to improve your sleep and decrease tiredness. The group meets from 12-1 in Winnett lounge. Insomnia kits will be provided. Sweat dreams!

**November 14** – Progressive muscle relaxation

**November 21** – mindfulness meditation

**November 28** – Coping with holiday and exam stress

## Feynman teaching award nominations

**NOMINATE YOUR FAVORITE PROFESSOR FOR THE FEYNMAN TEACHING PRIZE!!!**

*Here's your chance to nominate your favorite professor for the 2011-12 Richard P. Feynman Prize for Excellence in Teaching! You have from now until January 2, 2012 to submit your nomination package to the Provost's Office to honor a professor who demonstrates, in the broadest sense, unusual ability, creativity, and innovation in undergraduate and graduate classroom or laboratory teaching.*

*The Feynman Prize is made possible through the generosity of Ione and Robert E. Paradise, with additional contributions from an anonymous local couple. Nominations for the Feynman Teaching Prize are welcome from faculty, students, postdoctoral scholars, staff, and alumni.*

*All professorial faculty of the Institute are eligible. The prize consists of a cash award of \$3,500, matched by an equivalent raise in the annual salary of the awardee. A letter of nomination and detailed supporting material, including, but not limited to, a curriculum vitae, course syllabus or description, and supporting recommendation letters*

*should be directed to the Feynman Prize Selection Committee, Office of the Provost, Mail Code 206-31, at the California Institute of Technology, Pasadena, California, 91125. Nomination packages are due by January 2, 2012.*

*Additional information including guidelines for the prize and FAQ may be found at <http://provost.caltech.edu/FeynmanTeachingPrize>. Further information can also be obtained from Karen Kerbs (626-395-6039; [kkerbs@caltech.edu](mailto:kkerbs@caltech.edu)) or Stacey Scoville (626-395-6320; [staceys@caltech.edu](mailto:staceys@caltech.edu)) in the Provost's Office.*

# News update from Caltech Today

## Caltech researchers find pulsating response to stress in bacteria

MARCUS WOO  
Science Writer

PASADENA, Calif.—If the changing seasons are making it chilly inside your house, you might just turn the heater on. That's a reasonable response to a cold environment: switching to a toasty and more comfortable state until it warms up outside.

And so it's no surprise that biologists have long thought cells would respond to their environment in a similar way.

But now researchers at the California Institute of Technology are finding that cells can respond using a new kind of pulsating mechanism, instead of just shifting from one steady state to another and staying there.

The principles behind this process are surprisingly simple, the researchers say, and could drive other cellular processes, revealing more about how the cells—and ultimately life—work. In their experiment, the researchers studied

how a bacterial species called *B. subtilis* responds to a stressful environment—for example, one without food. In such conditions, the single-celled organism activates a large set of genes that help it deal with hardship, by aiding cell repair for instance.

Previously, biologists had thought the bacteria would handle stress by turning on the relevant genes and simply leaving them on until the stress goes away.

Instead, the researchers found that *B. subtilis* continuously flips these genes on and off. When faced with more stress, it increases the frequency of these pulses. The pulsating action is like switching your heater on full blast for a brief period every few minutes, and turning it on and off more frequently if you want the house to be warmer.

"It's a very different view of how a cell can respond to a particular stress," says James Locke, a postdoctoral scholar at Caltech. Locke and graduate student

Jonathan Young are the lead authors on a paper describing this work, which was published in the October 21 issue of *Science*.

To make their finding, the researchers introduced a chemical to *B. subtilis* that inhibits the production of ATP, the energy-carrying molecules of cells. The team found that the stress induced by this chemical triggers interactions within a set of genes—collectively called a genetic circuit. This circuit, which contains a set of positive and negative feedback loops, generates sustained pulses of activity in a key regulatory protein called  $\sigma B$  ("sigma B"). The researchers attached fluorescent proteins to the circuit, causing the cells to glow green when  $\sigma B$  was activated. By making movies of the flashing cells, the team could then study the dynamics of the circuit.

The key to this pulsating mechanism is the variability inherent in how proteins are made, the researchers say. The number of copies of any specific protein in a

given cell fluctuates over time. The bacterial gene circuit amplifies these molecular fluctuations, also called noise, to generate discrete pulses of  $\sigma B$  activation. The stress also activates another key protein that modulates the pulse frequencies.

By turning a steady input (the stress) into an oscillating output (the activation of  $\sigma B$ ) the genetic circuit is analogous to an electrical inverter, a device that converts direct current (DC) into alternating current (AC), explains Michael Elowitz, professor of biology and bioengineering at Caltech, Howard Hughes Medical Institute investigator, and coauthor of the paper. "You might think you need some kind of elaborate circuitry to implement that, but the cell can do it with just a few proteins, and by taking advantage of noise."

This work provides a blueprint for how relatively simple genetic circuits can generate complex and dynamic behaviors in individual cells, the researchers say. "We're

excited to think that similar mechanisms may occur in other cellular processes," Locke says. "It'd be interesting in the future to see which aspects of this circuit architecture also appear in more complex systems, such as mammalian cells."

"With this work and recent work in other systems, we're starting to get a glimpse of just how dynamic cellular control systems really are," Elowitz adds. "That's something that was very difficult to see in the past."

The other authors of the *Science* paper, "Stochastic pulse regulation in bacterial stress response," are research technicians Michelle Fontes and Maria Jesus Hernandez Jimenez.

The research was funded by the National Institutes of Health, the National Science Foundation, the Packard Foundation, the International Human Frontier Science Organization, and the European Molecular Biology Organization.

## iGEM team uses bioengineering to combat EDCs

Continued from page 1

"EDCs are chemicals, often produced by humans that mimic estrogen and cause reproductive harm, an example being exposed male fish becoming intersex. [The students] wanted to find some gene that encodes for the degradation of at least one of the EDCs [they]

were exploring." (Shelton) The team first tried culturing organisms from the LA River in the hopes of finding such a gene. They also referred to literature on relatively uncharacterized genes and tested some cytochrome p450's from Dr. Frances Arnold's lab. They also simultaneously explored bioreactors for possible

methods of water bioremediation. The students "envisioned *E. coli* expressing a degradation protein, growing in a biofilm on some substrate packed in a column, and then being able to flow EDC-contaminated water through the column and have decontaminated effluent at the other end." (Shelton) The ten-week project brought

along many surprises. One of the group's mentors helped find a gene called DDT dehydrochlorinase, from fruit flies, which can degrade the pesticide DDT. When the gene was optimized for expression in *E. coli*, the students found that it retained its functionality, which was especially exciting because it meant that synthetic biologists

could use this tool in a simple model organism. In addition, one of the examined cytochrome p450s from the Arnold Lab was found to initiate the degradation of BPA, a common component of polycarbonate plastics. Furthermore, the results from the gene fishing experiment were also interesting; the students found that organisms cultured from the LA river could grow in the presence of endocrine disruptors as the only carbon source, indicating that these organisms can possibly degrade the disruptors. Being able to conclusively show that the organisms in these cultures are degrading endocrine disruptors would allow for the subsequent isolation of the genes responsible.

Although this sort of real-world experience does come with an approximately 40-hour work week and its own set of frustrations, Julia speaks for the whole team when she says, "it was rewarding to reach the end of the summer and see our work take us to the final level of the competition, and to see other teams taking an interest in our project." iGEM also provides a glimpse of the type of ongoing research in other parts of the country, and even the world. Julia reflects, "There are a lot of very cool projects being done for this competition, and it's been fascinating to travel to these conferences and see such an incredible breadth of work, all done by students like us."

More information on the Caltech iGEM 2011 team can be found at <http://2011.igem.org/Team:Caltech/Project>. A meeting for people interested in iGEM for next year will be held on November 17 (Thursday) at noon. Lunch will be served.



From left to right: Emzo de los Santo, Julia Brown, Pukei Cheng, Ashley Su, Nikki Thadani, Amanda Shelton, and Nate Glasser at Regionals.

- <http://2011.igem.org/Team:Caltech>

# Caltech Couture: A student's take on fashion and life

**ALEX LANGERFELD**  
Columnist

'Tis the Season! Well, almost. If weather here is not a good indicator of the season, then I can at least justify myself by noting that Halloween has already passed. Caltech came up with a number of creative and well-made costumes. One of my favorites was a walking blue book – very appropriate and frightening considering that Halloween was during Midterm season. I also heard about a professor who dressed up as Einstein and gave his lecture with an accent. It was nice to see Teachers get out of their daily routines and celebrate a holiday, and even though Hollyween at Winnett was not generally recognized as the best party Caltech has seen, there was still a celebratory spirit throughout campus.

Those who wanted to celebrate found ways to do it. And as for those who complained while sulking as a group in someone's room wishing that the party were better, all I can say is there never will be a party for you if you don't get yourself off the couch!

Halloween is always a nice segue into November, which brings with it colder weather, homier food, and the onset of the true holiday season. Cozy sweaters reappear. Jackets, boots, and scarves pop up. Of course, here you'll also see people wearing a poof vest with mini shorts and flip-flops even

when it's raining. However, some definitely catch onto the fact that even though we are in sunny Southern California it isn't always sunny. We can still wear seasonal clothing for the sake of the mood.

This season also brings with it No Shave November.

I've heard much talk of this around campus. Guys are measuring up their beard potentials to see if they can handle this month-long marathon. Girls are anxiously waiting to see how scruff can change their friends' looks.

Although some fear November for this reason, I don't think it's necessarily that

terrible, as long as the right people participate. If a guy can grow a full beard and moustache, then why not give it a shot? At least for the first week he'll have a chance to sport the scruffy Hollywood look and have an excuse for it besides pure laziness! Let's

see what the male population can flaunt this month and hopefully December won't bring with it a sigh of relief. I just hope that no girls decide to participate in this, however amusing it may seem to them, because it will not be amusing to anyone else.

The coming season is also known for its joyful and loving spirits. On this note, something

blew my mind the other night. A friend came over bleeding with a pretty bad cut and needed help dressing the wound. Later when I asked how the cut was doing the kid got very upset and said that no one else had asked and couldn't understand why I bothered!

I tried to explain that this was the most natural thing to do but to no avail. The kid seemed almost furious. This incident stuck in my mind for a while. Was the kid just upset? Was it a bad day? Was it a temporary issue of pride? I'd like to give that benefit of the doubt.

Otherwise I must conclude

of proper upbringing? Over-loaded academic schedules?

Why then, in a campus that boasts to be so tight and self-supporting, are "friends" so often apathetic towards each other's troubles?

Is it considered solely the job of the UCC's, Health Ads, and counselors to care for others? Caring should not be a chore and treating it as such really blows my mind. Perhaps it is because our campus is already very comfortable and cozy. Administration does so much for our sake and well-being that perhaps we have lost all instinct of mutual care because there is always someone above us to organize something for us.

With such a well-developed and well-regulated support infrastructure, perhaps we have forgotten that there are other ways to care besides following the administration's flow-chart of levels of help. Or perhaps it is due to a general lack of manners. Truly, it seemed like a shock to the kid that someone would check on the cut after seeing this kid bleed a river into the sink a few hours earlier. However, this puzzles me too. I've seen this kid make an extra effort to check on others who weren't doing well, so simple ignorance or bad character

is not the issue at hand. Rather, I am afraid that the issue is a deeper one that involves the community. If the community as a whole is not kind, then people learn quickly not to expect anything beyond general interactions from its members.

Another possibility is that this is a case specific to the injured victim. In this case I am very sorry for this kid who is receiving so much passive ill-treatment and I hope that a new, sincere, and caring circle of friends will soon appear.

Yet I can certainly say that I know plenty of people on campus who do care for each other. If we know that one of us is having trouble, we check on him, entertain him, have a dinner, something. Nonetheless, this issue of apathy wouldn't have bothered me so much if it weren't so prominent on campus. Perhaps it is directly linked with that sedentary group I mentioned earlier, which even refused to go out to the party that it so desperately pined for. This would make sense. I am afraid that I cannot put my finger on the reason for such disgusting indifference for friends' troubles and much less on the fact that those not receiving this necessary attention aren't all troubled. I hope that this story opens everyone's eyes and hearts and in light of the coming "season of love", I hope very much that we all do our best to be considerate members of our community so that no one is left stranded. Finally, I hope that this kid finds and happily receives the care offered.

“

If a guy can grow a full beard and moustache, then why not give it a shot? At least for the first week he'll have a chance to sport the scruffy Hollywood look and have an excuse for it besides pure laziness!

”

that most people this kid knows, although they may call themselves friends, wouldn't step out of their way for another friend even so much as to check on a pretty bad wound! This is a very sad conclusion indeed because if it is true, it is clearly not restricted to this poor kid's circle of acquaintances. It is most likely spread across our campus and beyond. Is the reason apathy? Lack

# US cannot defend unjust killing of Al Awlaki

**EVANS BONEY**  
Contributing Writer

You used to be innocent until proven guilty.

As of last month, you are now innocent until the government puts you to death (and then, by the way, you are guilty without trial or public examination of the evidence against you, so long as the President calls you a "terrorist").

In case you don't know what I'm talking about, I'm talking about the premeditated murder of a muslim cleric and his son, the Al Awlaki family by US soldiers, authorized by the President on the "strength" of evidence that has not been made public.

Not only did Al Awlaki not have a chance to respond to charges brought against him...no charges were ever brought against him.

No discovery, no trial, and certainly no witnesses or testimony.

His son, being 17, would perhaps not have even been tried as an adult, but he too was still summarily executed under orders from our fuhrer.

Al Awlaki had indeed become an enemy of the American state, although he was once (even after

9/11) a guest of the state department and a prominent American ally in the muslim community. In his own words, he did not condone violence, but could not stand idly by while the American military murdered his friends and family.

We've killed over 110,000 muslim civilians since 9/11.

That's more than 36 times as many civilians as were killed in our biggest national tragedy ever, and we're still willing to write that off as collateral damage.

Weren't all men created equal at some point?

Our international wars must be a pretty valuable thing if it takes 10,000 civilian lives per year to collateralize it.

As a cleric (similar to a catholic priest, there is no public evidence at this time Al Awlaki played any operational role in terror), it is clear the sort of contact he is alleged to have had with "terrorists". One can presume that he was consulted by Jihadis who wanted their consciences soothed, or who were considering violence against Americans.

Presumably these 110,000 civilians, based on the average family size in the countries we killed them (~6.5 children per mother), have around 700,000

family members (in their nuclear family, never mind the number of people whose more distant relatives have been murdered).

Of those, one may assume that some will consider taking revenge. This revenge would obviously be targeted against American civilians, but of course, American deaths are NEVER collateral damage.

Even when we fight a war for a decade, have you seen a single news article describing an American death this way?

We are at war with Al Qaeda, but they are at Terrorism with us. How's that for detailed balance?

Nonetheless, let's say you're a priest.

A disturbed young man comes to you and tells you he is thinking of revenge for the murder of his innocent family, say by putting explosives in his underwear (although there has been no public evidence of those conversations) or attacking a military base (not even terrorism... as it is a military target, and we are involved in a war, or at least using that name to justify killing innocent brown people by the tens of thousands).

Would you tell him to just go back to his remaining family, duck, cover, and wait for the next round of hellfire? We have been killing

family members and friends in these countries for a decade, half a generation. If we don't stop soon, an entire generation of Muslim children will know nothing of us except our murder of their relatives.

In any case, I would do the only thing Al Awlaki is publicly alleged to have done: told Nidal Hasan that it is ok to take revenge for the murder of your family by attacking a military target.

From the Bible, that terrorist tome: "there is a time to kill and a time to heal".

Same line.

Again from the Bible, on hate crimes: "If a man lies with a man as one lies with a woman, both of them have done what is detestable. They must be put to death; their blood will be on their own heads."

And yet, here is Al Awlaki, a personal hero of mine and a martyr for freedom of the poor and the brown against the rich and the bloodthirsty:

(in 2003): "We're totally against what the terrorists had done. We want to bring those who had done this to justice. But we're also against the killing of civilians in Afghanistan."

(in 2008): "Fighting them is what is called for at this time. We

have reached a point where it is either us or them."

(in 2009): "Nidal Hasan is a hero. He is a man of conscience who could not bear living the contradiction of being a Muslim and serving in an army that is fighting against his own people."

You don't have to be a history buff or have any access to confidential files to understand Al Awlaki's point of view.

We killed his family, and he thinks it's righteous to shoot back.

I agree.

There are roughly 700,000 people out there with a righteous motive to kill American soldiers.

There are maybe a handful of people left in Al Qaeda that actually had anything to do with attacking us.

There is no evidence that our so-called "Al Qaeda on the Arabian Peninsula" is anything other than "muslims who are tired of their innocent fathers, brothers, mothers, and children being killed all the time".

Let's make the government give us some.

Repeal the Patriot Act. Bring the soldiers home.

And stop killing 30 civilians a day, or at least try to keep a freaking count.

## New Dean Leslie Nye speaks with *The Tech*

**ELIZABETH DECOLVENAERE**  
Contributing Writer

Dean Lesley Nye is easily the newest face among the deans of undergraduate students at Caltech. Dean Nye graduated from Williams College in 1993, and then went on to join Teach for America. She returned to Harvard for her doctorate in the history and sociology of American education, then serving as the Resident Dean of Freshman at Harvard from 2002-2007. Dean Nye was then Director of Student Life at Princeton for four years, before being hired by Caltech as Associate Dean of Undergraduate Students.

She can currently be found on the second floor of the Center for Student Services, and on Wednesday the 26th I decided to pay her a visit.

**Elizabeth Decolvenaere:** So, how's the first three weeks?

**Dean Nye:** Exciting, good, it's been really fun. I'm in the beginning of my fourth week, it seems like a lot longer than that, and I've met a lot of great people, had a lot of really great conversations, doing everything I can possibly can to come up to speed as quickly as possible. I've met with RAs, TAs, house presidents, staff members from the diversity center, folks in the grad student office, housing... it's just sort of one conversation after the other and I'm now just starting to bring in random students, which is really fun.

**ED:** How did you end up at Caltech, from Princeton?

**DN:** After a few years I thought, "my family is on the West Coast and I'd really like to move on," and I started looking for positions primarily at other sort of elite institutions on the West Coast, and when this job came up it was just absolutely perfect. It was doing the same kind of work I was doing the last 10 years, with another equally talented group of undergraduates. Having gone to

a small undergraduate institution myself, I really liked the idea of being in a smaller community



-princeton.edu

where I could really get to know everyone, and relationships are much more important than at bigger places.

I could really see myself settling in for some time, and it was really exciting that this was sort of a new role, but still doing what I'm doing and asking people what they need and trying to meet those needs, in a way I think is often not possible when you're coming into a role that's already really well established.

**ED:** How does it feel here, compared to what you were told?

**DN:** I don't know yet. Sorry, I don't know.

**ED:** Has anything happened yet that will really stick with you for the next n years?

**DN:** It does seem to me that the students and the staff I've met here so far are really quite passionate. I think that everyone who I have met here across all the departments, from security to the counseling center to the dean's office to housing, really care deeply about what they do, and really do want what is best for the students and for the institute.

I think the students with who I've met seem to be very committed, to their work and their academic development as well as to the institute. The people here care deeply.

**ED:** Have you seen anything that really scares you?

**DN:** There's some stuff going on that clearly has been going on for a long time that is problematic. And I think a lot of it has continued under the guise of tradition,

which is all very well and good, but I think there's going to need to be a campus-wide conversation about what is valuable about these traditions.

At this point I'm trying to figure out what is real and what is rumor and what is serious and what is playful, where the problems really do lie.

And then, hopefully, start having conversations with the community about who Caltech students are, and who they want to be, and whether or not what they're doing reflects that. But there's nothing that "scares me" so far.

**ED:** What do you mean by "conversations with the community"?

**DN:** We're talking about everyone from CDS people to custodial staff to security to student leadership to students who've chosen to live off-campus because they don't like what's going on with the houses, to students who've chosen to be part of the house leadership,

coaches, faculty members. As I've said before, I think people here care passionately about this place, and therefore should be interested in engaging in a thoughtful conversation. So as a community, I mean everybody. Because this place belongs to everybody, not just the administration, not just to the students, and not just to the faculty.

**ED:** How do you feel about ditch day?

**DN:** I'm excited to see it. That's all I can say, I don't know much about ditch day except that "it happens" and I guess the faculty go along with it, so if the faculty don't mind students not going to class for a day, who am I to complain about it?

**ED:** How do you feel about core?

**DN:** I don't know that I know very much about it at this point. I know that it's intense. I think that every faculty should review its curriculum every once in a blue moon, but I have no idea if that's necessary here, I haven't been around long enough, can't really say. Right now, to be perfectly honest, I'm focusing on non-academic stuff. Dean Green

**ED:** Would you like to stay with non-academic stuff?

**DN:** No, I think the model that works best is one-stop-shopping. Dean Green and I can have our specialties, but if a student comes in, I want that student to be able to talk to either of us as needed.

**ED:** How do you feel about the honor code?

**DN:** Yay honor code. What's not to like about the idea of the honor code? There are some schools out there that also have honor codes, so it's not entirely unique. I think as long as students really are self-policing, I think that the honor code is a great idea.

**ED:** Do you see it calming down for your any time soon?

**DN:** No.

**ED:** Final comments?

**DN:** The one thing I will add is that I hope, I really do hope to be received as someone who is eager to learn and to listen to people. I want to get to know as many students and anyone in the community as I



I want to get to know as many students and anyone in the community as I can, and I do think that everyone has a valuable perspective, though I don't think...we're all going to agree on everything all the time.

- Dean Nye



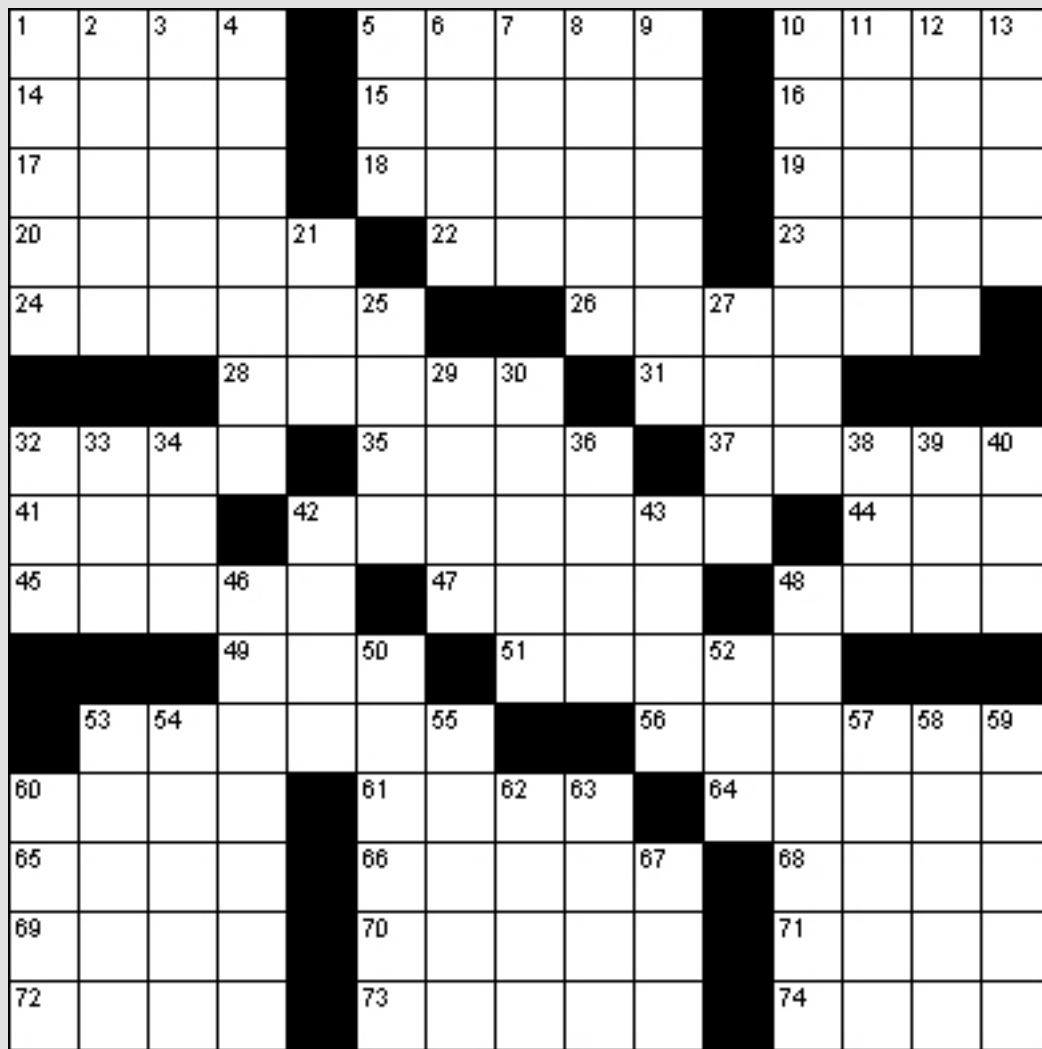
has historically taken care of that, and while I'm still in my very steep learning curve I'm really going to be focusing primarily on non-academic stuff.

can, and I do think that everyone has a valuable perspective, though I don't think that means we're all going to agree on everything all the time.

## Things to check out in the coming week:

~ November 2011 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
6	7	8	9 -Men's Water Polo vs. Vanguard	10	11 -Men's Water Polo vs. CMS -TACIT's The Memorandum	12 -XC at NCAA West Regional -TACIT's The Memorandum -C-O Symphony Orchestra on-cert

## Today's Puzzle: Crossword



**Across**

- 1. Impartial
- 5. Primary
- 10. Huge
- 14. Skin condition
- 15. Stadium
- 16. Small island
- 17. Roster
- 18. Colossus
- 19. Slender
- 20. Brook
- 22. Ends a prayer
- 23. Payment for use
- 24. Involve
- 26. Evaluation
- 28. Terrestrial gastropod
- 31. Argument in favor
- 32. Coop
- 35. Object of worship
- 37. Run off to marry
- 41. Be indebted
- 42. Exact
- 44. Novel
- 45. Part of a flower
- 47. Rational
- 48. This place
- 49. Drinking vessel
- 51. Term of a contract
- 53. Mythical beast
- 56. Male feline
- 60. Poke

61. Narrate

- 64. South American ungulate
- 65. Assistant
- 66. Chord with three notes
- 68. Burden of responsibility
- 69. Appear
- 70. Call forth
- 71. Price
- 72. System of weights or ancient city
- 73. Regenerate
- 74. Hinge joint

21. Family

- 25. Den
- 27. Large woody plant
- 29. Parts of the Roman calendar
- 30. Type of anesthetic
- 32. Police officer
- 33. Wonder or admiration
- 34. Acquire
- 36. Spoken by an actor
- 38. Single unit
- 39. For each
- 40. Female sheep
- 42. Stopper
- 43. Chair
- 46. School for special training
- 48. Highly poisonous herb
- 50. Harry the magician
- 52. Ancient Roman sun god
- 53. Not as wet
- 54. Cowboy exhibition
- 55. Courage
- 57. Body of rules
- 58. Entertain
- 59. One of the senses
- 60. Yore
- 62. Jungle king
- 63. Reservoir
- 67. Condensation

**Down**

- 1. Travesty
- 2. Fruit of the oak
- 3. Cove
- 4. Set free
- 5. Flexible container
- 6. Song for solo voice
- 7. Crease
- 8. Inside
- 9. Short sleep
- 10. Invective
- 11. Livid
- 12. Catapult
- 13. Camping equipment

[<http://www.puzzlechoice.com/>]

## Answers to last week's crossword from puzzlechoice.com



[<http://www.puzzlechoice.com/>]

## Upcoming Event: Dava Sobel Book Signing

**What?:** Reception & Booksigning for Dava Sobel, author of *A More Perfect Heaven: How Copernicus Revolutionized the Cosmos*.

**When?:** Tuesday, November 8, 2011  
5:00 pm to 6:30 pm

**Where?:** The Planetary Society  
85 S. Grand Ave.  
Pasadena, CA 91105

Telescope viewing to follow

Questions?  
Call 626-793-5100  
Visit <http://planetary.org>



Adam Khan takes a shot during Caltech's victory over Chaffey on October 29. In addition to being humiliated by the loss, Chaffey had to return home knowing that its name was still Chaffey.

- gocaltech.com

## A short chat with Caltech's new Athletic Director: Betsy Mitchell

**SAMSON CHEN**  
Contributing Writer

Betsy Mitchell, the 1984 Olympic gold medalist and world record holder for the 200-meter backstroke for five years, became the new Director of Athletics, Recreation, and Physical Education at Caltech in July 2011.

**SC:** Tell me a little bit about your background.

**BM:** I'm pretty simple—I come from a small town in Ohio. My parents still live there. I went off to school at the University of Texas. I got both my undergraduate and graduate degrees in education and sports administration, and I swam there in college. Really, swimming for me was most fun in college. I swam for the national team before college, during college, and after college, but really my most fun were my team meets, when you're doing it for a greater cause and people that you're with every day. After school, I was the women's swimming coach at Dartmouth.

I went back to school at Harvard and got a certificate in educational administration, and then I went to Cleveland where I was a high school athletic director at a girl's private school. I did some independent consulting and public speaking before I got the Athletic director job at Allegheny College.

One of the things I see when I'm looking back at the first half of my life was that I had a whole other career in rowing, so it was really, really interesting to go to the national team level in a second sport. I represented our country at the world championships in rowing as well as in swimming. Doing a team sport, which you couldn't without another person, was just a lot different for me from swimming.

The other highlight of the first half of my life would be when I climbed Mount Kilimanjaro. The summer after I was back at school in Harvard, I just met a group of people who were going to Africa, which I had never done and had always wanted to do. So we went on

a photographic safari and saw the sites and a lot of history. Climbing Mount Kilimanjaro, though, was really a highlight for me—it was very cool, very out of the box, out of my comfort zone, and really provided some life-changing perspective.

And now I'm here.

**SC:** So why did you decide to become athletic director here at Caltech?

**BM:** I'd been an athletic director at Allegheny and had done that for five years, and I really enjoy higher education. I enjoy working with this age group of young people, and I enjoy the "macro-opportunity" this position provides: when you're a coach, you work with 25 kids, and you know other people on campus but it's a much narrower focus. When I get to be the coach of the coaches, I'm getting to know all of the teams and getting to know lots of kids. The obligation and the responsibility becomes as much to look outside our department and connect our department to the other departments on campus as it is just to work with students who just happen to be in physical education or intercollegiate athletics. Why Caltech in particular? The job responsibilities were much broader than in my past school. There's a physical education requirement here, and that is an amazingly great thing in today's world. So many places have let go of that. For Caltech to still have that 9 unit requirement is fantastic; it really speaks to the kind of place it is trying to be. The other piece that is a huge dynamic here is the recreation program. There are clubs of all kinds and they show the interplay between students and staff, and students and faculty. I just find that to be awesome because as intellectually rigorous as this place is, it's also a very active community and one where folks really are honoring their physical dimension. That's what my life has really been about, that's what my career is really about, and in a really interesting way that's really

what Caltech is about. So there's a breadth to the job here that is really different from Allegheny.

And I guess the last "why here" is I was ready for change, and my family and I were ready for change in scenery and location. I won't miss the 110 inches of snow!

**SC:** How's the transition been from your previous position?

**BM:** Anytime you get a new job you have to learn the environment, the culture, and what's valuable at that organization. That has been a big part of these first six months. At the same time, I've been brought here to look at this department and look at things and see if we're really doing it with the rigor and relevance that people expect from a Caltech education. So we're at the point where we're moving away from the "let's get to know what it is" stage and we may begin to start seeing some changes. But change is good.

I'd also like to say that the people who I work with have just been so friendly and pleasant and helpful across the board, and I've really enjoyed that.

**SC:** Anything else you would like to tell the Caltech community?

**BM:** I'm in this job because I like to help people, and to follow their passion for any and all things physical. That's what motivates me and that's what gets me up in the morning—leading and supporting that for a community. Like any job that's done with limited resources of space and time, the conflicts that occur are only out of good intention. Two groups may want the same space at the same time, and I have to be the arbiter of that. The only way I know to help this community with that is through good planning and good communication. I'm here because I love it—the not-so-fun part of my job is when there is inevitable conflict of limited space and time. But my door is open and my phone and e-mail are on, and I respond, and I'm looking forward to meeting as many people as possible. And I truly mean the door is open!

## From the desk of the Sports Editor: Caltech sports are funnier than the humor page, and that's okay

**AMOL KAMAT**  
Sports Editor

With the fall sports winding down and the winter ones just starting, I would like to say a few things to my fellow Techers and student-athletes.

I am the sports editor for the Caltech newspaper. Telling people this often elicits laughter, disbelief, or at the very least one of those scoffs that starts in the upper nasal cavity and ends in the beer gut. As much as we all take our sports very seriously, it is true that Caltech is not known for its athletics, and probably will not be for quite a while. This is not a bad thing. We should be proud that we are allowed to play NCAA sports without having a great deal of talent. But, we should also acknowledge that with such a lack of skill means that we cannot be too arrogant. We need to learn to laugh at ourselves before we can stop being hurt or feeling bullied by those who laugh at us. Yes, we work very hard at balancing school and sports, but that is not enough to make us better than the schools that recruit top players and allow them to take one class a semester so they can train all day. We need to accept that that is okay. Yes, we may beat those teams every once in a while. Yes, it is perfectly acceptable to gloat and mock when this happens. But, the rest of the time, let's practice a little humility.

This brings me to my main point: I make fun of Caltech sports. A lot. It's easy to do and it keeps the readers interested. More importantly, though, it's usually true. That isn't to say that I haven't unfairly ridiculed a team for something beyond its control.

I definitely have (sorry about that, soccer team), but for the most part, I'm just stating what happened. If you find that offensive or unfair, I say welcome to the real world. When a team loses a majority of its games, the fans become frustrated and the local newspaper can be unkind. If we want to be treated like real athletes, it's time we accept all treatment.

I'd like to address a few teams, now. Soccer team, your season is over, now, and I'd just like to say thank you for being such good sports about my assessment of some of your games. You had a rough season, but you worked hard, and, in the end, that's what you should be proud of.

Men's basketball team, your season is about to begin. I wish you the best of luck. I will certainly be in the stands cheering for you as often as I can. But, let's be honest, we've had a rocky relationship. Last year, you really took it upon yourselves to be the most well known sport at Caltech. We saw the posters. We went to midnight madness. You even won a conference game. You certainly enjoyed the fame. But, when I held the spotlight too close, there was anger. I criticized almost every sports team last year, but I only received heated responses from you. I want you to know that I love you, baby, but I won't change for you. There's no such thing as being unfair in Caltech sports. Last year, for example, the Caltech soccer team won a number of games and they never complained about my articles, not even about the one in which I described how Kunmi Jeje couldn't hit a soccer ball. My point is when you want to be recognized, don't complain about how you're recognized. I am allowed to criticize you when you lose a game. I'm even allowed to criticize you when you win a game. I just ask that you accept my jokes and laugh with the rest of us. You've guaranteed us a phenomenal season, and I will certainly try to cover it. So, don't be insulted when I do.

Tennis team: even though I'm a part of you, you are not immune.

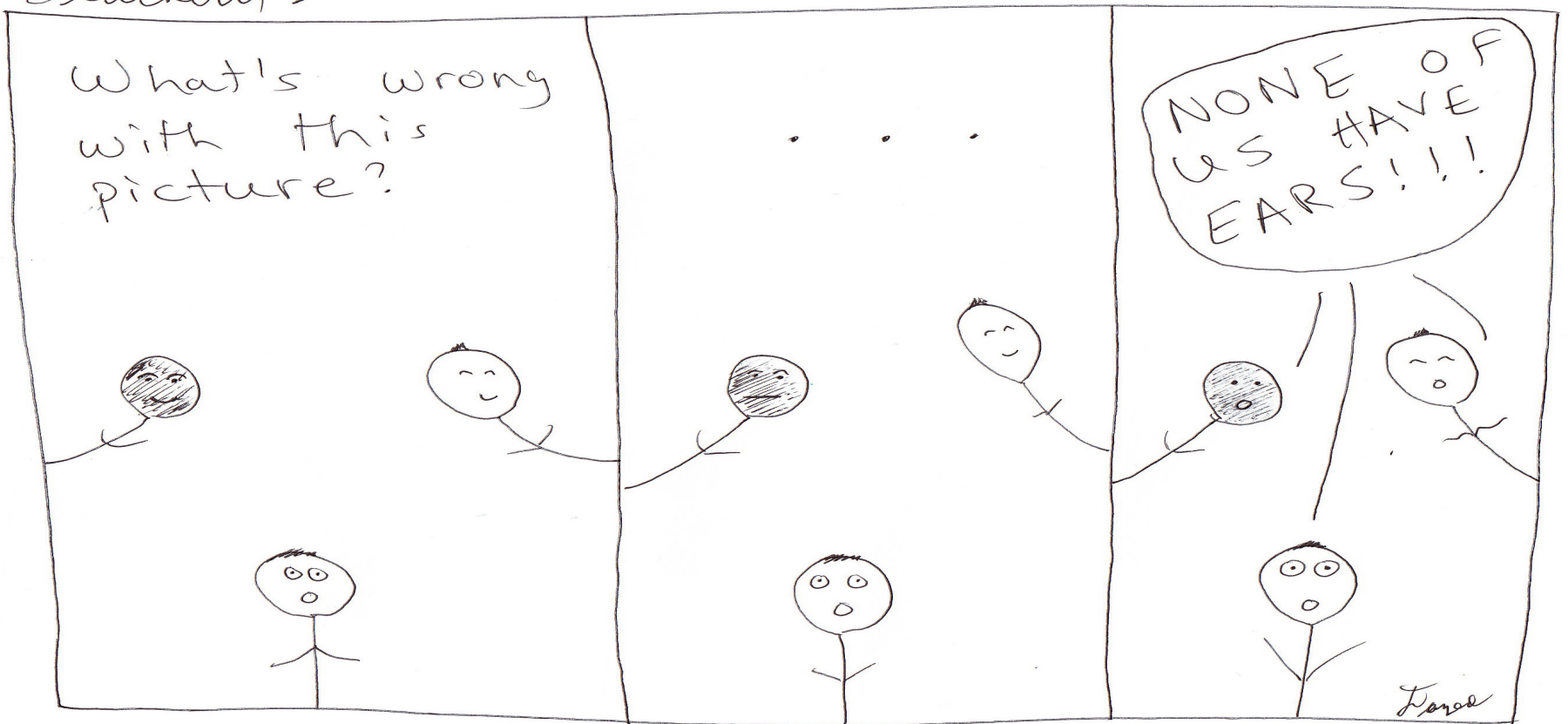
Let me conclude by saying that I don't mean that Caltech athletes have no chance of winning, nor do I want to discourage anyone from believing in their dreams. I just want us to accept reality to some extent. Caltech athletics is about having fun and making fun of ourselves. When we take ourselves too seriously, it makes us look ignorant and immature, two things Caltech is not.

## APPLES AND ORANGES

BY REBECCA LAWLER

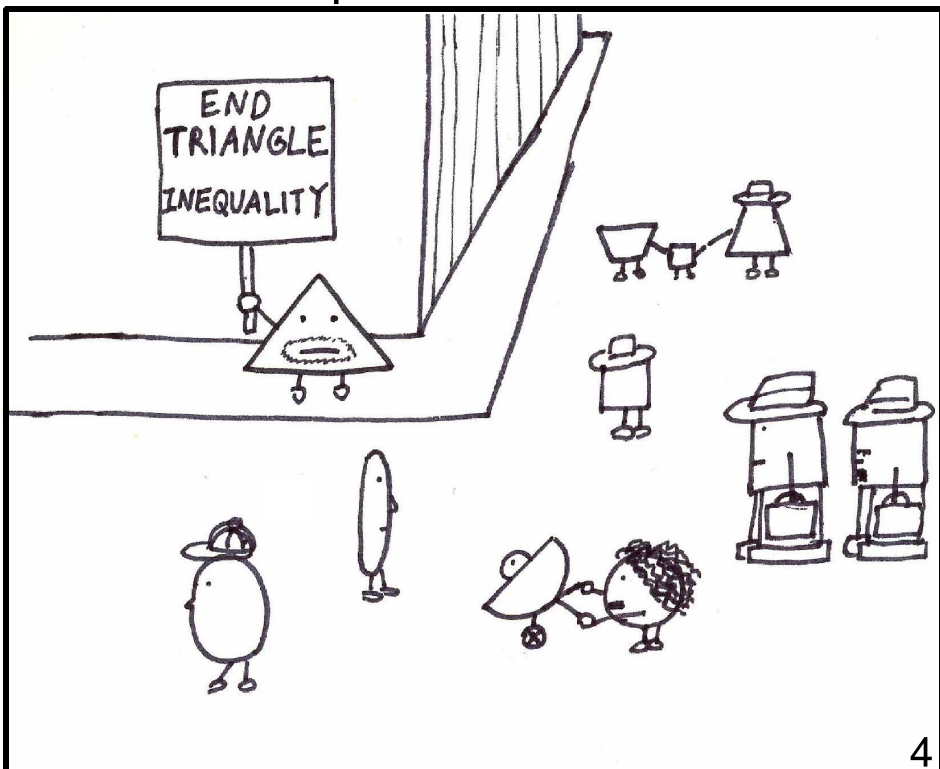


*Blackout!*



## Punctuated Equilibrium

Milo Lin



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