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# Letters

## Socially Aware

*A roundup of Caltech-related social media posts.*

**Mike Brown**, the Richard and Barbara Rosenberg  
Professor of Planetary Astronomy, and director and  
Terence D. Barr Leadership Chair of the Center for  
Comparative Planetary Evolution, posted the following  
thread on Bluesky on February 1, 2024:



In Jan 2021, I explained to my family that I was  
going to channel TSwift, and that I was feeling  
good ... I was going to rebound from a bleak  
2020 and I was going to find Planet Nine. I  
mapped out a whole program to predict where  
it is, search old archives, and find it. (1/?)

In 2021 we developed a new set of mathematical  
tools to turn measurements of the orbits of dis-  
tant objects in the sky into statistical predictions  
of where P9 should be. It was a massive effort  
of which I am extremely proud. It made 2021  
seem ok. Using those predictions, we were off  
to hunt. (2/)

In 2022 we developed new incredibly efficient  
algorithms for trawling through years worth  
of old data and we demonstrated how well it  
worked on a modest data set from a telescope  
at Palomar observatory. It was a good algorithm.  
It was fast. It was accurate. But it didn't find P9  
in those data. (3/)

It was ok, because the real data we wanted to  
look through was the years-long Pan-STARRS  
survey. There was too much data (and, frankly,  
too much garbage in the data). Even our nice  
fast algorithm stalled. We optimized. It [sped]  
up. The computers cranked through the data for  
about 14 months. (4/)

And we finished! And the paper is now out ...  
And... we didn't find P9. Why not? Well, there  
is still about 22% left in our search area that we  
weren't able to cover with these two. So there's  
that. But an obvious reason could be MAYBE IT  
DOESN'T EXIST, right? (5/)

Interestingly, even as we keep failing to FIND P9,  
we keep accumulating more and more evidence  
of its existence. We're just about to submit a  
new paper showing brand new evidence that  
you can't explain the positions of objects in the  
outer solar system without something like P9  
(stay tuned). (6/)

So, I guess this is just to say that this new paper  
out today was a massive effort that I had high  
hopes for and it would have been fun if it would  
have been the one. (7/7)



When we published the first #enzyme to MAKE  
carbon-silicon bonds back in 2016, some people  
asked us to BREAK them, so these man-made  
compounds would not persist in the environment.  
We finally made the first steps toward that.

**Frances Arnold**, the Linus Pauling Professor of  
Chemical Engineering, Bioengineering and Biochemistry,  
on X after her lab published a paper in the journal  
*Science* documenting its work using directed evolution  
to create an enzyme that can break artificial bonds  
between silicon and carbon.



After an academic career at U.C. Riverside and  
Caltech, Chris Birch became a track cyclist on  
the U.S. National Team. She was training for  
the 2020 Olympics when she was chosen as an  
astronaut candidate.

**NASA** on X  
after former Caltech lecturer Chris Birch was  
named to the 2024 astronaut class.



Congratulations to Adoniya Paul! She's a trail-  
blazer as the first African American student from  
Long Beach Unified to attend Caltech, and today  
I joined [Southern California Edison] as they  
presented her a \$50,000 scholarship to help her  
pursue her dreams.

She is inspiring every student who will follow  
in her footsteps. I look forward to hearing about  
her future success!

Long Beach mayor **Rex Richardson** on X.



What an amazing individual to be both mindful  
of the stress the students feel and appreciative  
of their diversity. Caltech is fortunate to have  
someone like Vincent.

**Juan Cenicerros** on Instagram in response to  
a #SoCaltech profile of **Vincent Lopez**, a barista and  
cashier at the Red Door Marketplace.

Read the story



Graduate student **Termeh Bashiri** took this  
photo on campus during the solar eclipse on  
April 8, 2024, using the space between leaves  
as a pinhole camera.