

ACS AMA: Hi, we're Raychelle Burks and Brandon Presley. Ask us anything about being U.S. Young Observers at the 2017 IUPAC General Assembly & World Chemistry Congress in Brazil earlier this month.

AmerChemSocietyAMA¹ and r/Science AMAs¹

¹Affiliation not available

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Abstract

ACS AMA Hi—we're Raychelle Burks and Brandon Presley. We recently attended the 2017 IUPAC General Assembly and World Chemistry Congress, held July 8-14 in São Paulo, Brazil, as part of the U.S. Young Observers program. I'm Raychelle Burks, Ph.D., an Assistant Professor of Chemistry at St. Edward's University in Austin, Texas. I'm an analytical chemist with crime lab experience and am focused on creating low-cost colorimetric sensors for detecting chemicals of forensic interest, including explosives and illicit drugs. My group utilizes smart phones, along with image analysis, to maximize the field readiness of developed sensor systems for potential use by crime scene analysts, law enforcement, and military personnel. I earned my B.S. in chemistry from the University of Northern Iowa, my M.S. in forensic science from Nebraska Wesleyan University, and my Ph.D. in chemistry from the University of Nebraska - Lincoln. I'm also passionate about science communication and serve on the advisory board of Chemical & Engineering News and UnDark Science Magazine. I'm Brandon C. Presley, a Ph.D. candidate studying analytical chemistry at Temple University. I earned my bachelor's degree in chemistry in 2010 from Temple University. I am employed as the Team Leader in the Abuse-Deterrent Formulations department at NMS Labs where I manage technical projects and conducts in-vitro testing for major pharmaceutical organizations. I've worked previously as a forensic chemist and bench chemist in clinical and forensic toxicology; I was also employed as a chemist at Intertek Testing Services. I have served at Temple University as a Graduate Teaching Assistant and joined the adjunct chemistry faculty in 2017. I was recently recognized as a Future Faculty Fellow by Temple University. I'm a member of the American Chemical Society (ACS) and an Associate Member of the Division of Chemistry and Human Health in the International Union of Pure and Applied Chemistry (IUPAC). My research interests include determining the metabolic profiles of novel drugs of abuse as well as determining Quantitative Structure-Retention Relationships (QSRR) of various classes of compounds. IUPAC is the global authority on chemical nomenclature and terminology—including naming of new elements in the periodic table—as well as setting other standards for measurement and other critically-evaluated data. Established in 1977 to foster interactions with internationally acclaimed scientists, the IUPAC Young Observer Program sends U.S. Observers under the age of 45 from industry, academia, and national laboratories to the IUPAC World Chemistry Congress and General Assembly, held every two years. The program aims to introduce the work of IUPAC to a new generation of researchers and to provide them with an opportunity to address international scientific policy issues. To help support participation of U.S. Young Observers, ACS is helping us share our experiences, learnings, and how the Congress and GA are helping to advance our scientific interests, priorities, networks, and careers. Learn more about our and our fellow Young Observers' experiences in this blog post . Ask us anything about being an IUPAC Young Observer, using technology for science communication, presenting at international chemistry conferences, or balancing a career with pursuing advanced education. We will be back at 12:30 p.m. EDT (11:30 a.m. CDT, 9:30 a.m. PDT, 4:30 p.m. UTC) to answer your questions. 12:30pm We're here to answer questions until 1:30pm ET! 1:30pm Thanks, y'all! We're signing off!

[REDDIT](#)

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Hi to both of you! Dr. Burks I've followed you writing online for quite a long time.

So what is the biggest area of work now in nomenclature? What recent developments in chemistry create problems when we try to name them?

[superhelical](#)

(Rb) Hiya, superhelical! A bit of background in IUPAC nomenclature. Division VIII is the Chemical Nomenclature and Structure Representation, the "big bosses" of nomenclature. However, every other division has nomenclature and terminology committees with specialty insight and expertise. The new hotness, as least to me, was NOT using the word "nomenclature" when speaking about non-chemicals. If one is talking about a process, method, etc. it's "terminology".

What would you say are the top 3 or top 5 hottest research directions in chemistry today?

[FeatheredSun](#)

This varies depending on the industry one is interested in, but there seems to be a big focus on:

*Nanoscience/Nanotechnology *Various therapies in the treatment of cancer *The use of Biologics in the pharmaceutical sciences compared to traditional therapies

(BRANDON)

Why the emphasis on using smartphones (even with an external sensor) over a stand-alone unit.
Cost?

[jaythespacehound](#)

(Rb) Our chief motivator is cost and carry. By "carry", I mean that field folks typically already carry a phone, so we wouldn't have to add an additional piece of equipment.

For the Young Observers Program, how much preparation do you get? Do they have training sessions to help you get the most out of it, or are you mostly just applying and using the skills you already have?

[kerovon](#)

Hi there!

We were notified of acceptance to the program a couple months before the conference, followed by several series of discussions around details of the associated events. There were various meetings throughout the conference where we were educated about the role of IUPAC and different ways to become involved in the Divisions of IUPAC, i.e. Analytical Chemistry, Chemistry and Human Health, etc. (<https://iupac.org/who-we-are/divisions/>).

Regarding use of current skills, we identified which Division we wanted to become involved in prior to the conference so that our experience was tailored to our area(s) of interest. (BRANDON)

What do you aspire to become in your careers, and how is participation in the IUPAC helping you reach those goals?

[p1percub](#)

Hi there p1percub!

I would like to become a university professor upon completion of my PhD in analytical chemistry. Briefly, my participation in IUPAC has contributed to this in the following ways:

*Building my network of individuals in academia who have already achieved my career goal(s); they can help me navigate the necessary paths *Opportunity to publish peer-reviewed publications in IUPAC's journal Pure and Applied Chemistry *Connecting with various Divisions and Committees of IUPAC including the Committee on Chemistry Education *Learning from scientists around the world (LITERALLY around the world); my current project includes individuals from the US, UK, Germany and Japan

(BRANDON)

What opportunities and experiences has the Young Observers program afforded you? How do you see it impacting your future careers?

[shiruken](#)

(Rb) The program provided me a global perspective unlike any meeting I've been to before. It was exciting to talk research with folks all over the world and collaborations are in the works, on IUPAC projects, research, and chemical education areas. I hope these collaborations allow all involve to meet our professional goals.

What function does the IUPAC serve in the chemistry world these days now that we live in a world connected through the internet? Is this yet another conference or are there actual policy decisions made?

[nate](#)

(Rb) The web is a wonderful communication tool, but chemists still need a common language in order to use any such tool. IUPAC provides a space and process, both IRL and online, for chemists to reach to reach consensus on a variety of issues - including world needs like sustainability, clean water, ewaste, etc. IUPAC is a community and a meeting, enabling chemists to work globally together.

What do you see for the future of IUPAC? Do you think it's relationship with the application of science is going to change at all?

[AlopeLago](#)

There was a lot of discussion during the conference and in the IUPAC Division meetings around the topic of engaging younger scientists and their future involvement in IUPAC. There is also a push for developing effective succession plans. This was made clear when a memorandum of understanding was made between IUPAC and the International Younger Chemists Network (<https://intlyoungerchemistsnetwork.wordpress.com/>).

I believe that by taking measure such as this, IUPAC will maintain its relationship with chemistry community and this will expand as younger scientists get involved. Promotion on social media, attendance and promotion at conferences will be key for the younger population of scientists to become involved.

(BRANDON)

How many days were you there? What was your typical day like?

[ts_neumann](#)

(Rb) I was there for 7 days and they were jam packed! Breakfast meetings, all day division or committee meetings, working lunches, more meetings, talks, evening poster sessions, networking dinners.... many folks, including myself, were also getting online meetings with work back home. The Young Observers were also tasked with developing a project pitch and presenting that project. I also joined CHEMRAWN (Chemistry research applied to real world problems) committee members in forming a social media task forces and submitting a proposal.

What's your advice for younger scientists at big conferences? How do you meet your peers and network with more senior scientists? It overwhelms me sometimes.

[redstag73](#)

(Rb) there are a couple of ways to go about this... if you've got a well connected mentor, ask them to be your sponsor during the meeting (making introductions, including you in conversations, etc.). Going to smaller socials and receptions for divisions, committees, etc. can also be a good step, especially the free ones! More and more, conferences have dedicated networking events with seasoned hosts that work to connect folks and foster interactions. In a non-official way, tweet-ups are fairly common and can be a good way to meet other folks interested in making new connections.

Why am I working as a mover for a moving company in order to eat despite having a worthless B.S. in chemistry with a graduating 3.8 gpa

[theslithering](#)

(Rb) Job searches can be very frustrating. Not sure if you've checked it out, but many folks have had success using the ACS Career Navigator. <https://www.acs.org/content/acs/en/careers.html>

Also, @chemjobber does a super job blogging and keeping chemists up-to-date on the latest trends in employment.

Hey guys. Sorry, I didn't know this was happening so I don't have anything planned.

So I am just going to ask, did you guys go to San Francisco for the ACS conference this past Spring? I went with a couple other members from my University and we all had a great time. Was there any research presented there that you felt stood out as particularly relevant?

[OnlyOne_X_Chromosome](#)

(Rb) Turns out, neither Brandon or I went to #ACSSF! We'll both be at the DC meeting!