

# USNCO Newsletter

U.S. NATIONAL CHEMISTRY OLYMPIAD

OCTOBER 2017

## USNCO Local Competitions



ACS SACRAMENTO LOCAL SECTION

ACS Sacramento Local Section students during the laboratory portion of the National Exam at Sacramento City College, CA.

In 2017, 144 ACS Local Sections, including four ACS International Chemical Sciences Chapters, selected their contestants for the USNCO examinations. The competition engaged nearly 17,000 high school students from more than 1,400 high schools in a range of events and examinations at the school-system level.

In April, nearly 1,000 national nominees in 138 Local Sections took the ACS Chemistry Olympiad National Exam. The exam consisted of three parts: 60 multiple-choice questions, eight complex problems, and two practical laboratory exercises. Local Sections honored participating students with gifts, such as monetary prizes, plaques, certificates of recognition, and USNCO pins. Students and their teachers were also recognized during award ceremonies and dinners by many Local Sections. High Honors and Honors certificates were awarded to the 141 top-scoring students on the USNCO National Exam. ■

## Team Alpha Kappa Makes History Winning Four Gold Medals in Thailand



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Left to right: Brendan Yap, Steven Liu, Joshua Park, Harrison Wang

The American Chemical Society sponsored a very successful Chemistry Olympiad program. At the 49th International Chemistry Olympiad (IChO) in Nakhon Pathom, Thailand, all members of the U.S. team won gold medals. This is the best performance in the history of the U.S. team since its first participation in 1984. The U.S. team was made of **Steven Liu** of Monta Vista High School, CA (Santa Clara Valley Local Section); **Joshua Park** of Lexington High School, MA (Northeastern Local Section); **Harrison Wang** of Hinsdale Central High School, IL (Chicago Local Section), who ranked fifth in the competition; and **Brendan Yap** of Carmel High School, IN (Indiana Local Section). The representatives of the U.S. team competed with other 293 students from 75 countries. At this competition 36 gold, 65 silver, 95 bronze medals, and 10 honorable mentions were awarded. The U.S. team was accompanied to Thailand by three mentors: **Michael Danahy** (chemistry professor, Bowdoin College, ME), **Patrick Chan** (chemistry teacher, Benjamin N. Cardozo High School, NY), and **Christine Saber** (chemistry professor, Gannon University, PA). ■



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## USNCO Study Camp

Twenty of the highest-scoring students in the USNCO National Exam took part in the USNCO Study Camp at the US Air Force Academy (USAFA), CO, June 6-21, 2017. These students were involved in lectures and laboratories covering the key branches of chemistry, including biochemistry, analytical, physical, inorganic, and organic chemistry. In addition to the three mentors, the Study Camp was led by peer mentor **Christopher Hillenbrand** (MIT, MA) and faculty of the USAFA Department of Chemistry. Students' skills were verified in laboratory experiments, quizzes, problem solving exercises and a final examination. At the end of the camp, six students were selected for the U.S. team: **Steven Liu, Joshua Park, Harrison Wang, and Brendan Yap**; and two alternates: **Jeffrey Shi**, of Central New York Local Section and **Aniket Dehadrai**, of Oklahoma Local Section. ■



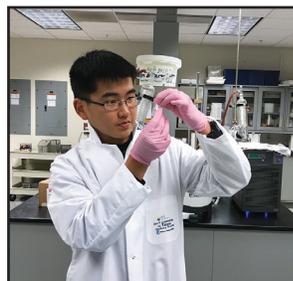
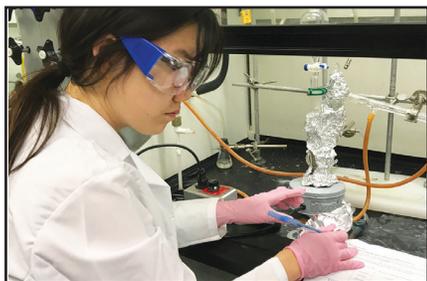
CH. SABER

Back left to right: Gunasheil Mandava, Thomas Draper, David Wu, Allen Zhao, Andrew Wu, Steven Liu, Alex Li, Jeffrey Shi, Tong Zhao, Allen Chang.

Front left to right: Zachary Chin, Joshua Park, Harrison Wang, Aniket Dehadrai, Brendan Yap, Yunfei Ma, Michelle Lu, Jiwon (Michelle) Lee, Yutong (Mary) Dai, Shannon Weng

### 2017 USNCO Statistical Information

Grade in High School	Intended College Major	Ethnicity	Gender
3% Freshmen	21% Chemistry or other Chemistry-related fields	2% African American	26% Female
15% Sophomores	20% Pre-med/Biology	50% Asian	74% Male
59% Juniors	32% Engineering/Physics/Math	3% Hispanic	
23% Seniors	24% Other Science Discipline	41% White	
	3% Undecided	6% Other	



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In the laboratory and taking the test

# Team USA members reflect on the IChO

## Steven Liu

When the top high school chemists from each country gather, great experiences are inevitable. *Surprisingly, the examination atmosphere was completely different from the exam atmosphere back home. Instead of a stressful, competitive examination room, the room felt bright and exciting, and instead of walking in worried, we walked in with exhilaration. Each student's main goal was not to score higher than everyone else, but to score to their full potential.* The sense of friendship and community continued, even after the exams were finished. Card games were played until dawn, and the hotel was filled with laughs. During these nights, we were not worried about the results very much. We were all cherishing the experiences of the IChO, and we were sad that we would have to leave each other soon. I am proud and fortunate to have made history at this IChO. Thank you to my chemistry teacher for supporting me throughout the competition and providing me opportunities to improve. Most heartily, thank you mentors, for passing to me your knowledge and challenging me. The few weeks I have spent with you all have been the best weeks of my life.

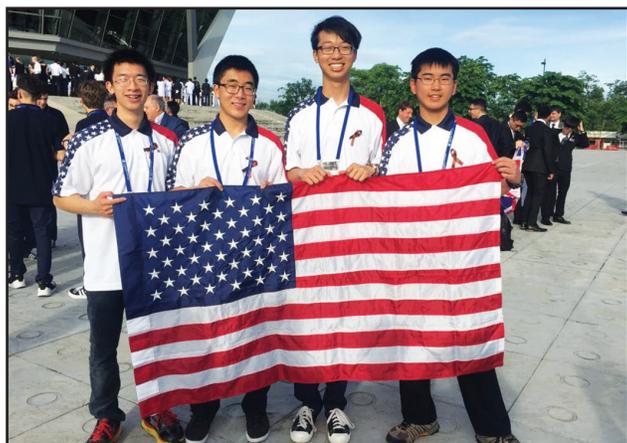
## Joshua Park

From the moment I learned that I was a member of Team US, I devoted my time to preparing for the approaching examinations. Because I gained familiarity with the necessary skills, the practical exam was not nearly as traumatic as I had feared, and was actually quite fun. *Between the testing and ceremonies were excursions to ruins centuries old and modern palaces, elephant farms and floating markets. New experiences included haggling over souvenir prices and feeding and petting massive elephants, both of which I will most likely never do in the US. The outings to the palace and temples exposed me to Thailand's rich history, generations of King Rama's, and elegant architecture.* Outside testing and excursions, I was free to enjoy

the best part of IChO: befriending people who, in some cases, live on the other side of the world, and learning about their schools, homes, and culture was without a doubt the highlight of the experience. The IChO was an incredible experience that created memories I will treasure for years to come

## Harrison Wang

A distant day ago, I stepped outside Bangkok International Airport, and immediately, the humid air blanketed me in a warmly comforting shroud. Though I was not prepared to be here, I knew the air would relax me into the awe of finally being at IChO. This atmosphere would persist on our excursions, in the faces and hearts of the Thai. We felt it in our guide, Meen, who constantly ensured that we were well-fed and taken care of, in the people on the street who provided directions and free food, and in the merchants who offered us good deals just because we were students. *Our final effort was completed in just 40 hours of testing. The practical exam's organic synthesis took us by surprise: everyone's yields were much lower than the expected from a typical synthesis problem.* Fortunately, the theoretical exam went smoothly for us except for a coordination chemistry question hinting at the Jahn-Teller effect, as well as a couple silly mistakes; it seemed that everyone's final ranks would be decided by the one organic synthesis problem. Winners during the closing ceremony were called up in groups. While anxiously waiting after a group of silvers had been called, the team behind us began to celebrate, and we asked why—the silvers aren't over but they had been keeping count better than us, and that group was the last group of silvers. And we cheered. This moment was the culmination



Team USA at the opening ceremony

C. HERNANDEZ

of the efforts of countless people. To Meen, to the Thai people, and to the IChO organizers; to our mentors; and to the 2017 study camp students for their support and friendliness: thank you all.

## Brendan Yap

*I'm honored to have represented the United States at the 49th IChO. I will fondly remember Thai cuisine in particular; I will treasure the memories of eating tropical fruits: mangosteens, coconuts, pineapple, bananas, and rambutans. Of course, IChO is more than a two-week tasting menu. There are exams to be taken!* I felt extremely well-prepared for this year's practical. Each part went smoothly for me, including spectrophotometry in task 1A, iodometric titration in 1B, and organic synthesis in task 2. I enjoyed the vibrant colors of the various pH indicators in task 1A. I remember the ecstatic feeling of my numbers agreeing with each other in the titration. The theoretical exam was relatively straightforward. I'd like to thank the ACS as well as the UMW and USAFA faculty for creating a wonderful study camp experience for us in the past two years. Also, I would like to thank this year's IChO organizers, the liaisons Meen and TamTam, and finally, our mentors for their hard work in preparing us for this unforgettable experience!

## 49th IChO Nakhon Pathom, Thailand

The opening ceremony of the 49th IChO took place at the Prince Mahidol Hall at Mahidol University. The ceremony was officially opened by Her Royal Highness Princess Maha Chakri Sirindhorn. Other welcome speeches were given by Pornpun Waitayangkoon, President of the 49th International Chemistry Olympiad and President of the Institute for the Promotion of Teaching Science and Technology in Thailand, and I-Jy Chang, professor from the National Taiwan Normal University and Chair of the IChO Steering Committee. Students were tested during the five-hour laboratory practical and theoretical examinations at the Mahidol University. During the remainder of the 10-days students engaged and participated in activities with participants of other countries, including touring historic sites, ancient cities, and other attractions planned by the host country. Members of Team U.S. made friends with their peers, shared and learned about different cultures, education systems, food and hobbies. ■



Sightseeing in Thailand

49TH ICHO



Team USA with other teams at the reunion party.

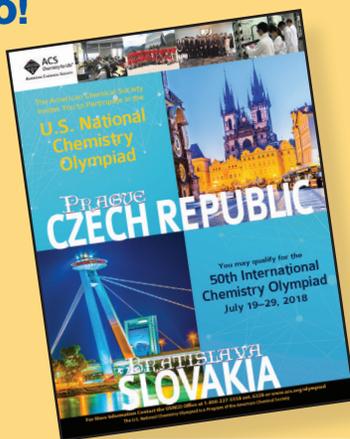
49TH ICHO

### INVITATION FOR STUDENTS TO APPLY FOR THE 2018 USNCO!

The **U.S. National Chemistry Olympiad Program** provides opportunities to establish social and intellectual ties among students. To participate in the USNCO, you must be a high school student and qualify at the local level to take the ACS National Exam.

Students must be U.S. citizens or Green Card holders of the United States to take the ACS National Exam.

FOR MORE INFORMATION,  
USE THE CONTACT INFORMATION BELOW



### THANK YOU!

The ACS Donald F. and Mildred Topp Othmer Chemistry Olympiad Endowment has been the primary sponsor of the U.S. National Chemistry Olympiad program. Additional support was received from:

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Thank you for supporting the  
2017 USNCO program!



PETER CUTTIS PHOTOGRAPHY

Congratulations to the  
ACS Georgia Local Section  
for winning the Chemistry  
Olympiad ChemLuminary  
Award for its outstanding  
2016 program.



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