



United States National Chemistry Olympiad

35th Summary Report

2018



Team USA winning four gold medals for the second year in a row!



U.S. NATIONAL CHEMISTRY OLYMPIAD

35th SUMMARY REPORT

2018

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2018 CHEMISTRY OLYMPIAD COMPETITIONS

The 50th anniversary International Chemistry Olympiad (IChO) was held in Bratislava, Slovakia and Prague, Czech Republic on July 19-29, 2018, commemorating the first IChO held in 1968 in former Czechoslovakia. Three-hundred students from seventy-six countries participated in the competition. The USA Team earned four gold medals for the second year in a row.

The American Chemical Society (ACS) sponsored the participation of the U.S. Alpha Lambda team. **Jeffrey Shi** of Marcellus High School, NY (New York Local Section) won the fourth highest ranking gold medal; **Michelle Lu** of Pomperaug High School, CT (New Haven Local Section) placed 10th; **Andrew Wu** representing Park Tudor School, IN (Indiana Local Section) placed 12th and **Yutong Dai** from Princeton International School of Mathematics and Science, NJ (Princeton Local Section) placed 13nd.

Approximately 17,000 students from more than 1,300 high schools representing 150 ACS local sections participated in the U.S. National Chemistry Olympiad (USNCO) local competition. 1025 of these students representing 139 ACS Local Sections took the USNCO national exam to compete for a spot on the international team. The test consisted of three parts: sixty multiple-choice questions, eight complex problems, and two laboratory practical exercises.

Twenty students who excelled on the national examination participated in a two-week chemistry study camp at the U.S. Air Force Academy (USAFA) in Colorado. Students received training in various major areas of chemistry by faculty of the: USAFA Department of Chemistry and University of Colorado Springs, Department of Chemistry; by Seth Brown (chair of the USNCO Examination Task Force); and mentors **Michael Danahy** (chemistry professor, Bowdoin College, MA), **Christine Saber** (chemistry professor, Gannon University, PA), and **Silvia Atim** (chemistry professor, University of South Carolina, SC). Peer mentor **Derek Wang** (chemistry student, Stanford University, CA) assisted the mentors in training the students. At the conclusion of the camp, the U.S. team and two alternates were selected based on a combination of results of tests and laboratory exercises. The 2018 alternates were **Aniket Dehadrai**, Oklahoma School of Science and Mathematics, OK (Oklahoma Local Section) and **Edward Jin**, Arnold O. Beckman High School, CA (Orange County Local Section). The three mentors accompanied the U.S. team to the IChO.

The U.S. delegation arrived at the airport in Vienna, Austria on July 19th and was met by the team guide, Valeria Nagyova, a representative of IChO and transferred to their respective locations in Bratislava. Students stayed at the Mlýny Dormitory in Bratislava, the mentors stayed at Lindner Hotel Gallery Central in Bratislava.

The 50th IChO started with an opening ceremony held on July 20th at The Old Market Hall in Bratislava. The ceremony was formally opened by Olga Nachtmannová, State Secretary of the Ministry of Education of the Slovak Republic; Karol Mičieta, Rector of Comenius University in Bratislava; Karel Melzoch, Rector of the University of Chemistry and Technology in Prague, and I-Jy Chang, Chair of the IChO Steering Committee who officially declared IChO 2018 to be open. In the afternoon students visited the medieval castle Červený Kameň near Bratislava.

Students participated in the five-hour laboratory practical and theoretical examination at the Faculty of Science building of the Comenius University in Bratislava. When not taking exams, students spent time together with members of the other teams and visited various attractions and

historic sites including a guided tour of Bratislava and Prague, open air mining museum in Banska Stiavnica and Solvay quarries. The teams reunited with their mentors during a party on July 25th.

The IChO concluded on July 28, with the presentation of medals at the closing ceremony at the Rudolfinum Concert Hall in Prague, followed by a banquet on the Vltava River bank to celebrate the accomplishments of all the students.

The success of the 2018 USNCO is reflected by the participation of over 17,000 students, the extraordinary accomplishments of the U.S. team at the 50th IChO, and the building of friendships between students across the globe who share the same interest and passion for chemistry.

The American Chemical Society views the USNCO program as an investment in the future of young chemists in this country. The goals of the program are to:

- *stimulate young people to achieve excellence in chemistry;*
- *recognize outstanding chemistry students and, by doing so, encourage additional learning at a formative time in their intellectual development;*
- *recognize the excellent achievement of the teachers of these students and the importance of the school environment in which they learn;*
- *promote contact between ACS local sections and area schools and foster the interest and influence of professional chemists in the teaching of chemistry;*
- *challenge the chemical knowledge and skills of young students in an international arena; and,*
- *foster cross-cultural experiences and acquaint students with similarities and differences between themselves and their counterparts in other nations.*

Since 1984, the USNCO program has been sponsored by the Donald F. and Mildred Topp Othmer Chemistry Olympiad Endowment.

Additional support came from the USAFA through the faculty and staff of the Department of Chemistry, and in-kind donations of housing, laboratory and lecture space for the students and mentors at the study camp.

The following corporations supported the program through in-kind donations:

- **Carolina Biological Supply and Company**
laboratory supplies
- **Fisher Science Education**
laboratory coats and supplies

- **Flinn Scientific**
chemicals and laboratory supplies
- **John Wiley & Sons Inc.**
organic chemistry and biochemistry eBooks
- **National Geographic, Cengage Learning**
analytical chemistry eBooks
- **Pearson Education Company**
physical chemistry textbooks
- **Texas Instruments Inc.**
scientific calculators
- **University Science Books**
inorganic chemistry eBooks

The ACS USNCO staff appreciates the dedication, enthusiasm, and contribution of time given by:

- The 2018 members of the USNCO Subcommittee of the Society Committee on Education, which provided policy direction for this program,
- The members of the USNCO examinations task forces, the grading team, and the mentor selection task force,
- The staff and faculty of the Department of Chemistry of the USAFA, and
- The mentors and peer mentors who taught and guided the 2018 Alpha Lambda Team.

Thank you!

PARTICIPATING ACS LOCAL SECTIONS

<u>Local Section (YP**)</u>	<u>Coordinator</u>	<u>Local Section (YP**)</u>	<u>Coordinator</u>
1. Akron (24)	Carol Shreiner	62. Mid-Hudson (34)	Lynn Maelia
2. Alabama (27)	Shirley Ginwright	63. *Middle Georgia (2)	Tiffani Holmes
3. Ames (25)	Terry Kruse	64. Midland (33)	Michael Tulchinsky
4. Baton Rouge (34)	Lawrence Wilkinson	65. Milwaukee (32)	Scott Barry
5. Binghamton (32)	Alexsandra Silva	66. Minnesota (35)	R. Naujok/ D. Blackburn
6. California (35)	Eileen Nottoli	67. Mississippi (24)	Reid Bishop
7. California Los Padres (20)	Stephen Contakes	68. *MO-KAN-OK (18)	Dilip Paul
8. Carolina-Piedmont (21)	Tim Champion	69. Mobile (34)	Jessica Owens
9. Central Arizona (31)	Richard Bauer	70. Montana (34)	Carol Pleninger
10. Central Arkansas (35)	Marian Douglas	71. Nashville (31)	David Crouse
11. Central Massachusetts (12)	Jeremy Andreatta	72. New Haven (32)	Olivier Nicaise
12. Central New Mexico (33)	Jacqueline Veauthier	73. New York (35)	Stephen Goldberg
13. Central New York (33)	Neal Abrams	74. North Alabama (32)	Bernhard Vogler
14. Central Pennsylvania (32)	Tod McPherson	75. North Carolina (32)	Michael Bruno
15. Central Texas (33)	Andria Marsh	76. North Jersey (35)	Jiwen Chen
16. Chattanooga (33)	Harriet Hamilton	77. *Northeast Georgia (6)	Maurice Snook
17. Chemical Soc. of Wash. (35)	Regina Cody	78. Northeast Wisconsin (34)	Andrew Schweitzer
18. Chicago (35)	R. Kohnken/D. Crumrine	79. Northeastern (35)	Steve Lantos
19. Cincinnati (34)	Richard Bretz	80. Northeastern Indiana (30)	Vicki Moravec
20. Cleveland (32)	Anne O'Connor	81. *Northeastern Ohio (16)	Richard West
21. Colorado (35)	Lisa Johnson	82. Northern New York (12)	Jim Burdick
22. Columbus (33)	Mary Wahba	83. Northern Oklahoma (33)	Keith Lawson
23. Connecticut Valley (35)	Edward Fitzgerald	84. Northern West Virginia (32)	Harry Finklea
24. Corning (28)	Stephen Tong	85. Oklahoma (35)	Reza Latifi
25. Dallas-Fort Worth (28)	Kathleen Holley	86. Omaha (11)	Edmund Tisko
26. Dayton (32)	Jenny Iskrenova-Ekiert	87. Orange County (34)	Brent Shenton
27. Delaware (34)	Glenn Hartman	88. Orlando (26)	Mary Roslonowski
28. Detroit (34)	Mark DeCamp	89. Ozark (32)	Madhuri Manapadi
29. East Central Illinois (4)	Kyle Shelton	90. Panhandle Plains (13)	Greg McGovern
30. East Tennessee (29)	Al Hazari	91. Penn-Ohio Border (33)	Michael Serra
31. East Texas (25)	Jerome Stavino	92. Pensacola (34)	Tanay Kesharwani
32. Eastern New York (33)	Stepehn Deyrup	93. Philadelphia (34)	Craig McClure
33. Eastern North Carolina (27)	Stephen Gabriel	94. Pittsburgh (35)	Ericka Huston
34. Erie (33)	Christine Saber	95. Portland (33)	Nick Hamel
35. Florida (28)	Stephanie Dillon	96. Princeton (23)	Danielle Jacobs
36. Georgia (29)	Heather Abbott-Lyon	97. *Puerto Rico (27)	Myrna Otano-Vega
37. Greater Houston (34)	Jerry Yang	98. Puget Sound (27)	Clarita Bhat
38. Green Mountain (20)	Alayne Schroll	99. Purdue (11)	Beatriz Cisneros
39. Hampton Roads (34)	Suely Black	100. Rhode Island (23)	Elaine Magyar
40. Hawaii (34)	Pamela Fujinaka	101. Rio Grande Valley (15)	Erik Yukl
41. *Hong Kong Int. Chapter (8)	David Lee Phillips	102. Rochester (32)	Alexey Ignatchenko
42. Huron Valley (25)	Larry Kolopajlo	103. Rock River (35)	Matthew Bork
43. Idaho (33)	Rene Rodriguez	104. Sabine-Neches (18)	Lloyd Crosby
44. Illinois-Heartland (29)	Dean Campbell	105. Sacramento (28)	Makoto Masuno
45. *Illinois-Iowa (30)	Bradley Sturgeon	106. Salt Lake (35)	Michelle Paustenbaugh
46. Indiana (35)	J. Huang/ R. Pribush	107. San Antonio (33)	E. Robert Fanick
47. Inland Northwest (11)	Thomas Flanagan	108. San Diego (34)	Joan Shellinger
48. *Iowa (29)	Leonard MacGillivray	109. San Geronio (34)	Dennis Pederson
49. Jacksonville (33)	Michael Lufaso	110. San Joaquin Valley (8)	Shawn Fleming
50. Joliet (33)	Daniel Kissel	111. Savannah River (33)	Monty Fetterolf
51. Kanawha Valley (23)	Michael Fultz	112. Shanghai Int. Chapter (5)	Jiang Peng
52. Kansas City (34)	Innocent Pumure	113. Sierra Nevada (16)	Ian Wallace
53. LaCrosse Winona (18)	Basudeb Bhattacharyya	114. Silicon Valley (32)	Sally Peters
54. Lehigh Valley (31)	Kathleen Herrera	115. Snake River (10)	Marian DeWane
55. Lexington (11)	Meghan Knapp	116. South Carolina (31)	Amy Rogers
56. Louisville (21)	James Tatera	117. South Florida (26)	Venkatesh Shanbhag
57. Maine (31)	James Killarney	118. *South Korea Int. Chapter (2)	Chang Gi Cho
58. Mark Twain (30)	Scott Luaders	119. South Plains (18)	Robert Long
59. Maryland (30)	Beatrice Salazar	120. South Texas (25)	Ludivina Avila
60. Memphis (33)	Dennis Merat	121. Southeastern Pennsylvania (34)	Todd Trout
61. Michigan State University (33)	Virginia Cangelosi	122. Southern Arizona (16)	Iman Daryaei

PARTICIPATING ACS LOCAL SECTIONS

<u>Local Section (YP**)</u>	<u>Coordinator</u>	<u>Local Section (YP**)</u>	<u>Coordinator</u>
123. Southern California (35)	Gerald Delker	137. University of Missouri (23)	Donald Wycoff
124. Southern Illinois (25)	Gary Kinsel	138. Virginia Blue Ridge (16)	Kimberly Lane
125. Southern Nevada (33)	Mark Garner	139. Virginia (34)	Ann Sullivan
126. Southwest Georgia (32)	Alexandrina Focsan	140. Wabash Valley (31)	Edward Mottel
127. St. Joseph Valley (33)	Diane Bowersox	141. Wakarusa Valley (8)	Lisa Sharpe Elles
128. St. Louis (35)	Harold Harris	142. Washington-Idaho Border (7)	Kristopher Waynant
129. Susquehanna Valley (32)	Deanne Garver	143. Western Carolinas (30)	George Heard
130. Taiwan Int. Chapter (2)	I-Jy Chang	144. Western Connecticut (34)	Monica Strada
131. Tampa Bay (13)	Susan Del Valle	145. Western Maryland (28)	James Stickler
132. Texas A & M (10)	Stephanie McCartney	146. Western Michigan (28)	Blair Miller
133. Toledo (23)	Somnath Dutta	147. Western New York (33)	Mariusz Kozik
134. Trenton (34)	Danielle Jacobs	148. Wichita (25)	Norman Schmidt
135. Tulsa (31)	Michael Henk	149. Wichita Falls-Duncan (29)	Jianguo Shao
136. University of Arkansas (11)	Julie Stenken	150. Wisconsin (14)	Matt Bowman

* Participated in the local section competition but not the National Exam

** YP-Number of years participating in the USNCO

USNCO STUDY CAMP PARTICIPANTS

<u>STUDENT/GRAD. YEAR</u>	<u>SCHOOL/TEACHER</u>	<u>LS/COORDINATOR</u>
Jenny Cai 2020	Park Tudor School, IN Jessica Hollenbeck	Indiana Jianping Huang/Robert Pribush
Andrew Chen 2018	Stuyvesant High School, NY Jeffrey Kivi	New York Stephen Goldberg
Yutong Dai 2018	Princeton Int. School of Math and Sci., NJ Qiang Chen	Princeton Danielle Jacobs
Aniket Dehadrai 2018	Oklahoma School of Science and Mathematics, OK Fazlur Rahman	Oklahoma Reza Latifi
Allen Ding 2020	Stevenson High School, IL Kevin Crowe	Chicago Russell Kohnken/David Crumrine
Edward Jin 2019	Arnold O. Beckman High School, CA Michael Tran	Orange County Brent Shenton
Omar Khan 2018	Oklahoma School of Science and Mathematics, OK Fazlur Rahman	Oklahoma Reza Latifi
Chanseo Lee 2019	Lexington High School, MA Parul Kumar	Northeastern Steve Lantos
Alex Li 2021	Lexington High School, MA Steven Wilkins	Northeastern Steve Lantos
Albert Liu 2019	North Hollywood High School, CA Altair Maine	Southern California Gerald Delker
David Liu 2019	West Windsor Plainsboro High School South, NJ Cynthia Jaworsky	Princeton Danielle Jacobs
Michelle Lu 2020	Pomperaug High School, CT Coleen Merritt	New Haven Olivier Nicaise
Anton Ni 2019	University High School, CA Nicholas Brighton	Orange County Brent Shenton
Yajvan Ravan 2021	Churchill High School, MI Robert Upton	Detroit Mark DeCamp
Jeffrey Shi 2019	Marcellus High School, NY Ellen Spencer	Central New York Neal Abrams
Matthew Wang 2019	Troy High School, MI Bill Hevel	Detroit Mark DeCamp
Andrew Wu 2019	Park Tudor High School, IN Jessica Hollenbeck	Indiana Jianping Huang/Robert Pribush
David Wu 2019	Westview High School, CA Scott Halander	San Diego Joan Schellinger
Iris Yan 2020	Carmel High School, IN Virginia Kundrat	Indiana Jianping Huang/Robert Pribush
Albert Zhu 2019	Solon High School, OH Anthony Sanson	Cleveland Anne O'Connor

50TH INTERNATIONAL CHEMISTRY OLYMPIAD RESULTS

In the 50th International Chemistry Olympiad 300 students from 76 countries participated and were awarded 195 medals and 10 Honorable Mentions (HM)

35 students received gold, 65 students received silver, and 95 students received bronze medals

COUNTRY (number of years of participation)	MEDALS	COUNTRY (number of years of participation)	MEDALS
1. Argentina (24)	2 silver, 1 bronze, 1 HM	38. Lithuania (17)	3 bronze, 1 HM
2. Armenia (3)		39. Malaysia (12)	1 silver, 1 bronze
3. Australia (31)	3 silver, 1 bronze	40. Mexico (27)	3 bronze
4. Austria (43)	2 silver, 2 bronze	41. Moldova (12)	3 bronze
5. Azerbaijan (19)	1 silver, 2 bronze, 1 HM	42. Mongolia (13)	2 bronze
6. Belarus (23)	1 silver, 3 bronze	43. Montenegro (4)	
7. Belgium (38)	1 bronze, 1 HM	44. Netherlands (39)	1 silver, 2 bronze
8. Brazil (19)	2 gold, 1 silver, 1 bronze	45. New Zealand (27)	3 bronze
9. Bulgaria (49)	1 gold, 1 silver, 1 bronze	46. Nigeria (6)	
10. Canada (32)	1 silver, 2 bronze	47. Norway (37)	1 bronze
11. China (31)	4 gold	48. Pakistan (13)	1 bronze
12. Chinese Taipei (19)	1 gold, 3 silver	49. Peru (14)	1 silver, 2 bronze
13. Costa Rica (9)	1 bronze	50. Philippines (2)	2 bronze
14. Croatia (19)	2 silver, 2 bronze	51. Poland (50)	3 silver, 1 bronze
15. Cyprus (30)		52. Portugal (15)	
16. Czech Republic (50)	3 gold, 1 silver	53. Romania (48)	3 silver, 1 bronze
17. Denmark (37)	2 bronze	54. Russia (25)	2 gold, 2 silver
18. Estonia (25)	1 silver, 2 bronze	55. El Salvador (6)	
19. Finland (41)	2 bronze	56. Saudi Arabia (8)	1 silver, 3 bronze
20. France (37)	1 gold, 1 silver, 2 bronze	57. Serbia (7)	2 bronze, 1 HM
21. FYR Macedonia (6)	2 bronze	58. Singapore (29)	2 gold, 2 silver
22. Georgia (5)	3 bronze, 1 HM	59. Slovakia (24)	2 silver, 2 bronze
23. Germany (28)	3 bronze	60. Slovenia (27)	2 silver, 1 bronze
24. Greece (23)	3 bronze	61. South Africa (3)	
25. Hungary (50)	1 gold, 1 silver, 2 bronze	62. Spain (24)	1 bronze, 1 HM
26. Iceland (17)	1 bronze	63. Sweden (44)	1 bronze
27. India (20)	2 gold, 2 silver	64. Switzerland (32)	1 bronze
28. Indonesia (22)	1 gold, 1 silver, 2 bronze	65. Syria (9)	
29. Iran (26)	4 silver	66. Tajikistan (14)	2 bronze
30. Ireland (21)		67. Thailand (29)	1 gold, 3 silver
31. Israel (13)	1 silver, 1 bronze	68. Turkey (26)	1 gold, 3 bronze
32. Italy (37)	1 silver, 3 bronze	69. Turkmenistan (16)	2 bronze
33. Japan (16)	1 gold, 2 silver, 1 bronze	70. Ukraine (25)	1 gold, 3 silver
34. Kazakhstan (21)	1 silver, 2 bronze, 1 HM	71. United Kingdom (36)	3 gold, 1 silver
35. Korea (27)	3 gold, 1 silver	72. USA (35)	4 gold
36. Kyrgyzstan (20)	1 HM	73. Uruguay (20)	1 silver, 1 HM
37. Latvia (28)	3 silver, 1 bronze	74. Uzbekistan (6)	2 bronze
		75. Venezuela (18)	
		76. Vietnam (23)	1 gold, 2 silver, 1 bronze

Observing countries:

2nd year: United Arab Emirates, Luxembourg

1st year: Ghana, Mali, Qatar, Sri Lanka

USNCO STATISTICAL INFORMATION

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Local Exam Local Sections	45	90	115	133	138	137	142	142	136	140	138
Natl. Exam Local Sections	45	90	115	133	138	137	142	142	136	138	138
Natl. Exam Nominees	209	500	600	650	706	689	719	684	638	940	900
Countries participating in IChO	21	22	22	26	26	26	28	31	33	38	41
Students participating in IChO	76	83	86	103	104	104	111	118	131	149	156

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Local Exam Local Sections	131	136	142	147	145	143	142	146	135	131	134
Natl. Exam Local Sections	121	130	127	134	130	126	121	133	130	125	128
Natl. Exam Nominees	875	840	838	880	851	809	796	850	829	800	909
Countries participating in IChO	42	45	47	55	51	54	54	57	59	61	59
Students participating in IChO	163	170	184	185	199	216	210	225	232	234	225

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Local Exam Local Sections	133	139	127	129	133	135	141	141	143	144	142
Natl. Exam Local Sections	125	128	117	125	128	126	134	135	137	134	128
Natl. Exam Nominees	890	917	868	916	930	941	1034	1062	1011	1010	983
Countries participating in IChO	66	66	66	65	68	70	72	73	75	75	67
Students participating in IChO	254	256	257	250	267	273	283	291	291	290	264

USNCO STATISTICAL INFORMATION

	2017	2018									
Local Exam Local Sections	144	150									
Natl. Exam Local Sections	138	139									
Natl. Exam Nominees	982	1025									
Countries participating in IChO	76	76									
Students participating in IChO	297	300									

USNCO NATIONAL EXAM STATISTICAL INFORMATION
(TOTAL STUDENTS – 1025)

Gender			
Male	680	74%	
Female	237	26%	
Responses	917	100%	89%
Ethnic Background			
African American	17	3%	
Asian	435	48%	
Hispanic	21	2%	
White	365	40%	
Native American	5	0.5%	
Pacific Islander	7	0.5%	
Prefer not to disclose	43	5%	
Other	11	1%	
Responses	904	100%	88%
Grade in School			
8th Grade	3	0%	
9th Grade	19	2%	
10th Grade	160	18%	
11th Grade	512	56%	
12th Grade	220	24%	
Responses	914	100%	89%
Years of H.S. Chemistry			
1	229	25%	
2	610	67%	
3	60	7%	
4	15	2%	
5 or more	0	0%	
Responses	914	100%	89%
Average time per week spent doing experiments in HS Chemistry Lab			
Less than ½ hour	249	39%	
Between ½ and 1 hour	222	35%	
Between 1 and 2 hours	134	21%	
More than 2 hours	29	5%	
Responses	634	100%	62%
Intended College Major			
Biological Sciences/Pre-Medicine	154	20%	
Chemistry or other Chemical Science	139	18%	
Engineering/Mathematics/Physics	269	34%	
Other Science discipline	36	5%	
Other or undecided	191	24%	
Responses	789	100%	77%

As a result of participating in USNCO students (% responded):	Strongly agree	Agree	Disagree	Strongly disagree
Plan to study more chemistry	37%	51%	12%	1%
Plan to major in chemistry	11%	34%	45%	9%
Have more positive view about chemistry	37%	50%	15%	3%

IChO PARTICIPATING TEAMS RESULTS 1984–2018

1984 – Frankfurt, West Germany – 16th IChO

Name	School	Local Section	Medals	Ranking
Seth Brown	Taylor Allderdice H.S., Pittsburgh, PA	Pittsburgh	Silver	13 (of 76)
Keith Rickert	The Latin School of Chicago, IL	Chicago	Bronze	37
Aaron DiAntonio	Clayton H.S., MO	St. Louis	Bronze	50
Peter Capofreddi	Newton High H.S., MA	Northeastern	D. R.*	

1985 – Bratislava, Czechoslovakia – 17th IChO

Name	School	Local Section	Medals	Ranking
Keith Rickert	The Latin School of Chicago, IL	Chicago	Silver	12 (of 83)
David Maymudes	University H.S., Los Angeles, CA	Southern California	Silver	25
Glen Whitney	Medfield H.S., MA	Northeastern	Bronze	44
Eric Kelson	Bountiful H.S., UT	Salt Lake City	Bronze	54

1986 – Leiden, Holland – 18th IChO

Name	School	Local Section	Medals	Ranking
Keith Rickert	The Latin School of Chicago, IL	Chicago	Gold	3 (of 86)
David Maymudes	University H.S., Los Angeles, CA	Southern California	Silver	20
Howard Lee	Lowell H.S., San Francisco, CA	California	Bronze	49
Hedy Edmonds	Greenwich H.S., CT	Western Connecticut	D. R.*	

1987 – Veszprem, Hungary – 19th IChO

Name	School	Local Section	Medals	Ranking
Anthony West	Kempsville H.S., Virginia Beach, VA	Hampton Roads	Silver	23 (of 103)
Cecil Huang	Pequannock Townsh. H.S., Pompton Pl., NJ	North Jersey	Silver	34
Jeffrey Snyder	Amherst Central H.S., NY	Western New York	Bronze	48
Kevin Crellin	Highland H.S., Salt Lake City, UT	Salt Lake City	D. R.*	

1988 – Helsinki, Finland – 20th IChO

Name	School	Local Section	Medals	Ranking
David Cliffel	Plainfield H.S., IL	Joliet	Silver (tie)	15 (of 104)
Laurance Lee	Lowell H.S., San Francisco, CA	California	Silver (tie)	15
Brian Kantsiper	Spring Valley H.S., Columbia, SC	South Carolina	Silver	26
Kurt Huang	New Terier H.S., Winnetka, IL	Chicago	Bronze	43

1989 – Halle, German Democratic Republic – 21st IChO

Name	School	Local Section	Medals	Ranking
Raphael Lehrer	Highland Park H.S., NJ	North Jersey	Bronze	40 (of 104)
Jon Kleinberg	Iroquois Central School, Elma, NY	Western New York	Bronze	42
Michael Furlanetto	Cherry Hill East H.S., PA	Philadelphia	Bronze	64
Roger Moore	Thompson Valley H.S., Loveland, CO	Colorado	D. R.*	69

* D.R. Diploma of Recognition

ICHO PARTICIPATING TEAMS RESULTS 1984–2018

1990 – Paris, France – 22nd IChO

Name	School	Local Section	Medals	Ranking
Wayne Whitney	Medfield H.S., MA	Northeastern	Gold	6 (of 111)
Marc Dionne	La Jolla H.S., CA	San Diego	Silver	30
Roger Moore	Thompson Valley H.S., Loveland, CO	Colorado	Silver	31
Steve Gubser	Cherry Creek H.S., Greenwood Village, CO	Colorado	Silver	32

1991 – Lodz, Poland – 23rd IChO

Name	School	Local Section	Medals	Ranking
Forrest Michael	Naperville Central H.S., IL	Chicago	Gold	12 (of 118)
Dean Chung	Mountain Lakes H.S., NJ	North Jersey	Silver	26
Ashley Reiter	NC School of Sci.& Math, Durham, NC	North Carolina	Bronze	39
Susan Kuhn	Girls Preparatory School, Chattanooga, TN	Chattanooga	Bronze	41

1992 – Washington, DC/Pittsburgh, PA, USA – 24th IChO

Name	School	Local Section	Medals	Ranking
Swaine Chen	O'Fallon Township H.S., IL	St. Louis	Gold	15 (of 131)
Logan McCarty	Amherst Central H.S., NY	Western New York	Silver	21
Jeffrey Chuang	Bellaire H.S., TX	Southeastern Texas	Silver	35
Christopher Herzog	Highland Park H.S., NJ	North Jersey	Bronze	44

1993 – Perugia, Italy – 25th IChO

Name	School	Local Section	Medals	Ranking
Chris Herzog	Highland Park H.S., NJ	North Jersey	Gold	5 (of 149)
Daniel Katz	Torrey Pines H.S., San Diego, CA	San Diego	Gold	14
David Hutz	Fox Chapel H.S., Pittsburgh, PA	Pittsburgh	Silver	27
Robert West	Oak Park H.S., Kansas City, MO	Kansas City	Silver	49

1994 – Oslo, Norway – 26th IChO

Name	School	Local Section	Medals	Ranking
Jessen Yu	T. Jefferson H.S. for S&T, Alexandria, VA	Washington, DC	Gold	12 (of 156)
Justin McCarty	Amherst Central H.S., NY	Western New York	Gold	19
Nicholas Loehr	Midlothian H.S., VA	Virginia	Silver	47
James Grimmelman	Horace Mann H.S., Riverdale, NY	New York	Bronze	59

1995 – Beijing, China – 27th IChO

Name	School	Local Section	Medals	Ranking
Jason Wong	T. Jefferson H.S. for S&T, Alexandria, VA	Washington, DC	Silver	43 (of 163)
Prashant Mishra	Detroit Country Day S., Beverly Hills, MI	Detroit	Silver	56
Elliot Waingold	Central York H.S., PA	Southeastern PA	Bronze	79
Michael Sawka, Jr.	Gunn H.S., Palo Alto, CA	Santa Clara Valley	Bronze	106

ICHO PARTICIPATING TEAMS RESULTS 1984–2018

1996 – Moscow, Russia – 28th IChO

Name	School	Local Section	Medals	Ranking
Henry Fu	Brecksville-Broadview Hts. H.S., OH	Cleveland	Gold	8 (of 170)
Alex MeVay	Groton School, MA	Northeastern	Silver	39
Michael Sawka, Jr.	Gunn H.S., Palo Alto, CA	Santa Clara Valley	Silver	45
Jason Chen	Claremont H.S., CA	San Gorgonio	Bronze	63

1997 – Montreal, Canada – 29th IChO

Name	School	Local Section	Medals	Ranking
Jason Chen	Claremont H.S., CA	San Gorgonio	Gold	2 (of 184)
Jordan Krall	Harvard-Westlake S., N. Hollywood, CA	Southern California	Silver	38
Andrew Heckerling	Niles West H.S., Skokie, IL	Chicago	Silver	51
Ian Baker	The McCallie School, Chattanooga, TN	Chattanooga	Bronze	112

1998 – Melbourne, Australia – 30th IChO

Name	School	Local Section	Medals	Ranking
Thomas Snyder	Amherst Central H.S., NY	Western New York	Gold	2 (of 185)
Ian Baker	The McCallie School, Chattanooga, TN	Chattanooga	Gold	6
Alexander Ioannidis	Bel Air H.S., MD	Maryland	Silver	30
Wei Ho	New Berlin West H.S., WI	Milwaukee	Bronze	86

1999 – Bangkok, Thailand – 31st IChO

Name	School	Local Section	Medals	Ranking
Timothy Jones	NC School of Sci.& Math, Durham, NC	North Carolina	Top Gold	1 (of 196)
Alexander Ho	Niles West H.S., Skokie, IL	Chicago	Gold	9
Wei Ho	New Berlin West H.S., WI	Milwaukee	Gold	20
Lisa Carlivati	T.Jefferson H.S. for S&T, Alexandria, VA	Washington, DC	Silver	36

2000 – Copenhagen, Denmark – 32nd IChO

Name	School	Local Section	Medals	Ranking
David Kurtz	Skyline H.S., Idaho Falls, ID	Idaho	Top Gold	1 (of 216)
Charles Duan	Beverly Hills H.S., CA	Southern California	Gold	13
Luke McSpadden	OK School for Science & Math, Tulsa, OK	Oklahoma	Bronze	69
Albert Wang	Bellaire H.S., TX	Greater Houston	Bronze	74

2001 – Mumbai, India – 33rd IChO

Name	School	Local Section	Medals	Ranking
Sean Kedrowski	Baylor H.S., Chattanooga, TN	Chattanooga	Gold	7 (of 210)
Binghai Ling	Brighton H.S., Rochester, NY	Rochester	Gold	15
Albert Wang	Bellaire H.S., TX	Greater Houston	Silver	25
Collin Martin	OK School for Science & Math, Tulsa, OK	Oklahoma	Silver	27

IChO PARTICIPATING TEAMS RESULTS 1984–2018

2002 – Groningen, The Netherlands – 34th IChO

Name	School	Local Section	Medals	Ranking
Helen Shi	OK School for Science & Math, Tulsa, OK	Oklahoma	Gold	21 (of 225)
Daniel Cissell	Walnut Hill H.S., Cincinnati, OH	Cincinnati	Gold	25
Colin Whittaker	Wayland H.S., MA	Northeastern	Silver	36
Timothy Davenport	OK School for Science & Math, Tulsa, OK	Oklahoma	Bronze	90

2003 – Athens, Greece – 35th IChO

Name	School	Local Section	Medals	Ranking
Wei-Han Bobby Liu	Cookeville H.S., TN	Nashville	Silver	80 (of 233)
Eric Brown	The McCallie School, Chattanooga, TN	Chattanooga	Bronze	98
Frances Hocutt	Redondo Union H.S., Redondo Beach, CA	Southern California	Bronze	104
Benjamin Kaduk	Naperville North H.S., IL	Chicago	Bronze	100

2004 – Kiel, Germany – 36th IChO

Name	School	Local Section	Medals	Ranking
Eric Brown	The McCallie School, Chattanooga, TN	Chattanooga	Silver	56 (of 234)
John L. Kiappes Jr.	Memorial H.S., Houston, TX	Greater Houston	Silver	78
Emily Tsui	Montgomery Blair H.S., Silver Spring, MD	Washington, DC	Silver	66
Fan Zhang	Bergen County Academies, NJ	North Jersey	Silver	75

2005 – Taipei, Taiwan – 37th IChO

Name	School	Local Section	Medals	Ranking
Jacob Sanders	Acad. for the Adv. of S&T, Hackensack, NJ	North Jersey	Silver	48 (of 225)
Nicholas Sofroniew	Harvard-Westlake S., N. Hollywood, CA	Southern California	Silver	64
Allen Cheng	Arcadia H.S., CA	Southern California	Silver	72
Scott Rabin	Miami Palmetto H.S., FL	South Florida	Bronze	109

2006 – Gyeongsan, Republic of Korea – 38th IChO

Name	School	Local Section	Medals	Ranking
Michael Blaisse	Bishop McDevitt H.S., PA	Southeastern PA	Silver	55 (of 254)
Gregory Brockman	Red River H.S., ND	Red River Valley	Silver	65
Andrew Freddo	Manalapan H.S., NJ	Monmouth County	Silver	77
Alexander Zozula	East Brunswick H.S., NJ	North Jersey	Bronze	94

2007 – Moscow, Russia – 39th IChO

Name	School	Local Section	Medals	Ranking
Brian Lee	Aca. for the Adv. of S&T, Hackensack, NJ	North Jersey	Silver	40 (of 256)
Justin Koh	Stockdale H.S., CA	Southern California	Silver	43
Kenneth Brewer	Timpview H.S., UT	Central Utah	Silver	65
Sofia Izmailov	W. Windsor-Plainsboro H.S. South, NJ	Trenton	Bronze	152

ICHO PARTICIPATING TEAMS RESULTS 1984–2018

2008 – Budapest, Hungary – 40th IChO

Name	School	Local Section	Medals	Ranking
Jonathan Lee	Harvard-Westlake H.S., N. Hollywood, CA	Southern California	Silver	70 (of 257)
Yuxin Xie	East Brunswick H.S., NJ	North Jersey	Bronze	89
Jenny Lu	Pomperaug H.S., Southbury, CT	New Haven	Bronze	132
Andrew Liu	Parkway Central H.S., Chesterfield, MO	St. Louis	Bronze	137

2009 – Cambridge, England – 41st IChO

Name	School	Local Section	Medals	Ranking
Yixiao Wang	Westfield H.S., NJ	North Jersey	Gold	25 (of 250)
Nathan Benjamin	W. H. Harrison H.S., West Lafayette, IN	Purdue	Silver	34
Brian Seifried	Chamblee H.S., GA	Georgia	Silver	37
Colin Lu	Vestal H.S., NY	Binghamton	Silver	59

2010 – Tokyo, Japan – 42nd IChO

Name	School	Local Section	Medals	Ranking
Colin Lu	Vestal H.S., NY	Binghamton	Gold	21 (of 267)
Alex Siegenfeld	Hopkins School, CT	New Haven	Gold	22
Richard Li	River Hill H.S., MD	Maryland	Silver	52
Utsarga Sikder	S. Brunswick H.S., NJ	North Jersey	Bronze	94

2011 – Ankara, Turkey – 43rd IChO

Name	School	Local Section	Medals	Ranking
Konstantin Borisov	North Allegheny H.S., PA	Pittsburgh	Gold	9 (of 273)
Joe Tung	Gretchen Whitney H.S., CA	Southern California	Gold	24
Elmer Tan	John P. Stevens H.S., NJ	North Jersey	Silver	48
Tayyab Shah	Vestal H.S., NY	Binghamton	Silver	80

2012 – Washington, D.C. – 44th IChO

Name	School	Local Section	Medals	Ranking
Chris Hillenbrand	Regis H.S., NY	New York	Gold	16 (of 283)
Sidhart Chand	Detroit Country Day School, MI	Detroit	Silver	64
James Deng	Choate Rosemary Hall, CT	New Haven	Silver	70
Jason Ge	Westview H.S., CA	San Diego	Silver	80

2013 – Moscow, Russia – 45th IChO

Name	School	Local Section	Medals	Ranking
David Liang	Carmel H.S., IN	Indiana	Gold	21 (of 291)
Runpeng Liu	Ladue Horton Watkins H.S., MO	St. Louis	Gold	26
Stephen Ting	Monta Vista H.S., CA	Santa Clara Valley	Silver	36
Saaket Agrawal	Mira Loma H.S., CA	Sacramento	Silver	47

IChO PARTICIPATING TEAMS RESULTS 1984–2018

2014 – Hanoi, Vietnam – 46th IChO

Name	School	Local Section	Medals	Ranking
Robert Kao	Edwin O. Smith High School, CT	Connecticut Valley	Gold	28 (of 291)
Derek Wang	North Allegheny Senior High School, PA	Pittsburgh	Silver	41
Stephen Li	Troy High School, MI	Detroit	Silver	44
Andrew Chen	W. Windsor-Plainsboro H.S. South, NJ	Trenton	Silver	50

2015 – Baku, Azerbaijan – 47th IChO

Name	School	Local Section	Medals	Ranking
David Wang	Monta Vista High School, Cupertino, CA	Santa Clara Valley	Gold	7 (of 290)
Janice Ong	T. Jefferson H.S. for S&T, Alexandria, VA	Washington, DC	Silver	76
Bryce Cai	Barrington High School, IL	Chicago	Silver	82
Soorajmath	OK School of Sci. and Math., OK	Oklahoma	Silver	83

2016 – Tbilisi, Georgia – 48th IChO

Name	School	Local Section	Medals	Ranking
Alex Liu	The Village School, Houston, TX	Greater Houston	Gold	8 (of 264)
Kevin Tang	Solon High School, OH	Cleveland	Silver	44
Joyce Tian	T. Jefferson H.S. for S&T, Alexandria, VA	Washington, DC	Silver	66
Zilu Pan	Canyon Crest Academy, San Diego, CA	San Diego	Bronze	102

2017 – Nakhon Pathom, Thailand – 49th IChO

Name	School	Local Section	Medals	Ranking
Harrison Wang	Hinsdale Central High School, IL	Chicago	Gold	5 (of 297)
Joshua Park	Lexington High School, MA	Northeastern	Gold	16
Steven Liu	Monta Vista High School, CA	Santa Clara Valley	Gold	28
Brendan Yap	Carmel High School, IN	Indiana	Gold	32

2018 – Bratislava, Slovakia, Prague, Czech Republic – 50th IChO

Name	School	Local Section	Medals	Ranking
Jeffrey Shi	Marcellus High School, NY	New York	Gold	4 (of 300)
Michelle Lu	Pomperaug High School, CT	New Haven	Gold	10
Andrew Wu	Park Tudor School, IN	Indiana	Gold	12
Yutong Dai	Princeton International School, NY	Princeton	Gold	13



L to R: Valeria Nagyova Slovak guide, Andrew Wu, Jeffrey Shi, Michelle Lu, Yutong Dai. Photo by M. Lu

Yutong (Mary) Dai

From the day arrived to the last farewell party, the 50th International Chemistry Olympiad is an unforgettable experience for me. Days ago, we arrived at the Vienna International Airport, and met the enthusiastic people. Our guide, the Copper Head, and the other members of the organizing team greeted us with warm welcome. Valeria, the Slovak guide for our team, guided the team through all the facilities on campus and let us familiarize with the university. We met the faculties and the members of the organizing team on our way, and they greeted us with smiles on their faces. They are friendly and supportive, which really helped me to relax when I first came to the foreign place.

The tests were long. Five hours of practical and another five hours of theoretical exams were both physically and mentally demanding. It is really nice that the organizers prepared snacks and drinks for us during the tests, which were located right outside of the lab for practical exam and right on one side of the

desks for the theoretical exam. The tests were longer than usual, and it did require me to calm down when I first saw the tasks on the table of content. Doing Preparatory Problems and getting familiar with them were helpful for the exams. Since the range of knowledge covered in the IChO tests is the same as the prep and the style of the problem is the same for both, the actual exam was somewhat expected. Nearly all the concepts and techniques involved in the exams appeared in the preparatory problems and that were what I prepared and practiced before IChO.

Outside testing, I enjoyed the history and culture of Slovakia and Czech Republic as well as all the fun activities. We went to different castles and learned about the medieval traditions such as fencing, coin making, candle making, archery, etc, through demonstrations and experiencing them directly. Also, we toured the castles that displayed with the furniture, pictures, and clothes from 17th century, where I learned how people lived in history. Aside from the castles, mining was unique there since it was critical to Czechoslovakia's economy, and we had the opportunity to go down to different mines and see how the techniques and instruments functioned. The most memorable experience is the "Boat Ride" at the wastewater plant. When Valeria first told us that there was an event for boat ride, having a boat ride on the nearby river was the picture that came into my mind. However, what actually happened surprised me. We were directed through a door and went down to the underground water process tunnels. I and all the other team members were confused. Later, the tour guide told us that we were going to have the boat ride there, in the underground water tank that was used to store the waste water. Nearly completely in dark, we had the boat ride in the water tank.

We also met many other teams there, and they were surprisingly friendly. Before I went to IChO, I thought that the environment there might be intense and competitive. However, people were friendly and we had a relaxing and fun time there, playing card games as well as some logic games.

The IChO was an incredible experience for me, and I would never make IChO without the support from many people. I would like to thank my parents and friends for their mental support. Also, I would like to thank my chemistry teacher Dr. Qiang (Steven) Chen, thank you for all the efforts for teaching me and guiding me through chemistry competition. Last but not the least, I would like to thank all the mentors: Chrissy Saber, Mike Danahy, Silvia Atim, and Derek Wang for their hard work making all the test papers and preparing us for IChO.

Michelle Lu

From the moment I stepped off the plane, in a new country and surrounded by unfamiliar sights and sounds, I knew I was in for the time of my life. Though tired from the long flight, I could already feel my excitement stirring as soon as we were greeted by a guy with a shock of blue hair — a Copperhead, and one of the official mascots for this year's competition.

Our first few days were a blur of overwhelming joy. We settled into our rooms and met our amazing guide, Valéria, whom we bonded with immediately through a game of ultimate frisbee. The opening ceremony was a blaze of color, music and dance; in a single exuberant morning, we were introduced to nearly three hundred students from seventy-six countries.



Team USA at the quarry. Photo by M. Lu

Caught up in exhilaration, it was hard to believe that we would be tested in just a few days; yet, the exams came almost too quickly, and before we knew it, it was test day.

The competition itself was especially creative. In both the practical and theoretical exams, we were surprised with unique and fascinating tasks, from the luminol clock reaction with bright blue flashes in practical task 2, to the regioselective reactions of beta- and iso-caryophyllene in theoretical question 8. The brilliant orange color of the hydrazone we synthesized awed us, while the question pertaining to the equilibrium of palindromic DNA sequences stimulated our minds. These tests challenged us to think outside the box and apply our background knowledge to new concepts.

The remainder of our time in Slovakia and the Czech Republic was spent on excursions where we were able to get to know the history and culture of our host countries. From train rides at Solvoy's Quarries to mineral water tasting from springs all over Slovakia, there was never a dull moment during our time there. Highlights included ziplining at an action park, sword fighting at Červený Kameň, and even archery on multiple occasions. The Czech and Slovak people were so welcoming everywhere we went, and made us feel right at home. But beyond this is arguably the most important part of IChO: meeting all of the incredible people from countries all over the world. It was a truly singular opportunity to be able to befriend such brilliant students from around globe and learn about their cultures, schools, and lives. From playing mafia on the train with the British, duck, duck, goose with the Koreans at a medieval castle, and ultimate frisbee at a wastewater treatment facility with the Dutch, Canadians, and countless other teams,

every possible second was enjoyed with new friends. Connections were forged that will undoubtedly last a lifetime.

It has been an honor to be a member of Team Alpha Lambda. This year's IChO has been an extraordinary experience that I will cherish in the years to come. But my time there was only made possible with the help of many people. Thank you to ACS and USAFA for all of your dedication to making this whole journey run smoothly. Thank you to the IChO organizers and Valéria for making our trip so exciting and unforgettable. Thank you to my chemistry teacher, Mrs. Merritt, for supporting me throughout this competition. And to our mentors: Chrissy; Mike; Silvia; and Derek, thank you so much; without your countless hours spent guiding, helping, and giving us your knowledge, training, and advice, this would never have been possible.

Jeffrey Shi

The IChO was an incredible educational experience that was enlightening in multiple ways, from exploring chemistry to understanding the cultures of the host countries to learning about the other countries.



J. Shi taking the theoretical exam. Photo by 50th IChO

At the IChO, we were given numerous opportunities to explore the Czech and Slovak cultures from excursions to tasting the traditional cuisine. I will remember looking out at the vast quarries, walking through the cold and damp mines, and visiting the ornate castles with a rich history preserved for centuries. The exploration of the cultures of the host countries was a collection of unique, memorable experiences. The problems this year were creative and I found them quite interesting. Slovakia has all

types of non-radioactive mineral waters and to explore this important part of the host country, the practical examination asked us to identify a mineral water sample through complexometric titration and using a cation exchange resin with alkalimetry. In addition, we were given a fun organic synthesis and a beautiful glowing clock reaction. On the theoretical examination, we were given more tasks related to the host countries, on Bohemian garnet and compounds contained in mushrooms. The other problems were also related to applications of chemistry, such as analysis of battery and fuel cell types, thermodynamics of DNA, and synthesis of a drug and required the use of knowledge in other disciplines, including mathematics and physics. After the examinations, we felt quite nervous because each of us knew we had done something wrong, but after the final group of silver medalists were called we celebrated. We knew everyone on our team got gold.

However the most indispensable part of the IChO was the people. During bus rides, meals, and our free time we socialized with the other teams, building an international intellectual community and understanding the educational and cultural environments of students from other countries. Beyond becoming colleagues, we became great friends with each other. We played Mafia with the teams from Canada and the UK; we played laser tag with the teams from Russia, Tajikistan, and Turkmenistan; and we played ultimate frisbee with teams from Uruguay, Iceland, the Netherlands, and others. From all the time we spent socializing with the other teams, I was able to learn about and bond with students from countries from all over the world. Throughout the eleven-day competition, every moment was unique because of the nature of the competition — a gathering of three hundred of the top chemistry students differing in their languages and cultures but unified by their passion for chemistry and the natural sciences.

I would like to thank everyone who influenced my experience with the Chemistry Olympiad: our knowledgeable mentors — both past and present — for instructing and preparing us, the United States Air Force Academy for helping make the study camp successful. The American Chemical Society for supporting the Olympiad program, my local ACS section and Dr. Neal Abrams for supporting me and helping me prepare for the practical, my now-retired chemistry teacher Mr. Dan Irby for nurturing my love for chemistry, and our guide Walla for helping us during all of IChO. The efforts of you all have made IChO a memorable experience.

Andrew Wu

As someone who studied almost endlessly for the Chemistry Olympiad, I can speak personally, as to how much work, time, and effort it requires to succeed. But along the way, many of us forget about one of the most important aspects of chemistry: connecting with others. The International Chemistry Olympiad was not simply a chance to prove myself on an international scale, nor was it just about properly representing the United States; instead, to me, it was a chance to meet the other amazing, brilliant minds of countries across the world. Through my ten days at the 50th Olympiad in both Bratislava and the Czech Republic, I had extraordinary experiences, explored beautiful new cultures, and met the people whom I will hold close to my heart for the rest of my life.

Coming in to the olympiad, I was certainly stressed beyond belief. I felt the pressure of representing not only the other members of team αλ, but also the people of the United States.

However, when I finally arrived in Bratislava after a long, tiring day of traveling, I could not help but be amazed at the friendliness and the energy of the other competitors. At the community gathering on the first day, we were given the opportunity to talk to the other teams and even play games with them. In a huge

gymnasium full of other excited chemists, I tried my best to meet as many representatives from other countries, those from Russia, China, Poland, Great Britain, and many, many more. All of them were open, amicable people whose kindness blew any doubts about my experiences out of my mind.

Over the countless excursions to Slovak mining towns, mineral water tastings, and more, these people made the experience amazing, with their own unique personalities and quirks making my time unlike anything I had ever done before. Furthermore, our amazing guide, Walla, along with the organizers of the events, helped us learn amazing things about both Slovakian and Czech culture. For example, I learned about that it is customary not to talk at the dinner table in Slovakian culture, in contrast to the United States. This was only the small part of the massive amount of knowledge I gained about Slovakian and Czech history and culture throughout the amazing excursions.

Regardless of how spectacular the side events were, in the end, the test itself was still on my mind throughout the entire trip. Just like me, many of my fellow competitors were nervous, fearful of the expectations placed upon them. However, despite this, the competition room was filled with energy and enthusiasm, and I found it hard to feel the stress that had slowly been building up the first few days. For both the practical and theoretical parts, I slowly but surely made my way through each test, working diligently to solve the tasks given to me. Overall, I think that this mentality was what allowed both my team and me to succeed in this year's IChO. I am extremely excited to be able to live up to the amazing legacy left by last year's IChO team. At the closing ceremony, when the last of the silver medals were called, we all screamed in joy, knowing that we had done it again, that we had all won a gold medal. It was an amazing feeling, and I know we have our extraordinary mentors Chrissy, Mike, Silvia, and Derek, as well as the USAFA staff, for our success. Personally, I have to thank my high school chemistry teachers Dr. Huang and Dr. Hollenbeck for the amazing role they played in inspiring me to success. I know this would not have been nearly possible without any of you.



Team USA with gold medals at the Closing Ceremony. Photo by 50th IChO.

Press Release

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FOR IMMEDIATE RELEASE

Top 20 high school students compete for spot on U.S. Chemistry Olympiad Team

WASHINGTON, May 15, 2018 — Twenty of the nation's top high school chemistry students have been chosen to compete for one of four spots on the team representing the U.S. at the 50th International Chemistry Olympiad in Bratislava, Slovakia, and Prague, Czech Republic, on July 19-29.

These students emerged from a series of exams that involved nearly 17,000 students across the U.S. Their next stop in qualifying for the U.S. team will be the Chemistry Olympiad Study Camp at the U.S. Air Force Academy in Colorado Springs, Colorado, June 10-25.

During the camp, the students will receive college-level training, with an emphasis on organic chemistry, through a series of lectures, problem-solving exercises, lab work and testing. At the conclusion of the camp, the top four students will be named as members of the team.

The American Chemical Society (ACS) has sponsored the American team annually since the U.S. joined the Olympiad in 1984. Principal funding is through the ACS Donald F. and Mildred Topp Othmer Olympiad Endowment, with additional support from the U.S. Air Force Academy, Department of Chemistry; Carolina Biological Supply Company; National Geographic Learning|Cengage Learning; Fisher Science Education; Flinn Scientific Inc.; Pearson; Texas Instruments Inc.; University Science Books; Sigma-Aldrich Inc. and Wiley & Sons Publishers.

The 20 finalists – 16 boys and four girls, representing 13 ACS local sections and 10 states – are:

<u>City/State</u>	<u>Name</u>	<u>High School</u>
Carmel, Ind.	Iris Yan	Carmel High School
Carmel, Ind.	Jenny Cai	Park Tudor School
Carmel, Ind.	Andrew Wu*	Park Tudor School
Edmond, Okla.	Omar Khan	Oklahoma School of Science & Mathematics
Flushing, N.Y.	Andrew Chen	Stuyvesant High School
Irvine, Calif.	Edward Jin	Arnold O. Beckman High School
Irvine, Calif.	Anton Ni	University High School
Lexington, Mass.	Chanseo Lee	Lexington High School
Lexington, Mass.	Alex Li	Lexington High School
Lincolnshire, Ill.	Allen Ding	Stevenson High School
Marcellus, N.Y.	Jeffrey Shi*	Marcellus High School
Norman, Okla.	Aniket Dehadrai*	Oklahoma School of Science & Mathematics
Pennington, N.J.	Yutong Dai*	Princeton International School of Mathematics & Science
Plainsboro, N.J.	David Liu	West Windsor-Plainsboro High School, South

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Porter Ranch, Calif.	Albert Liu	North Hollywood High School
San Diego, Calif.	David Wu*	Westview High School
Solon, Ohio	Albert Zhu	Solon High School
Southbury, Conn.	Michelle Lu*	Pomperaug High School
Troy, Mich.	Matthew Wang	Troy High School
Westland, Mich.	Yajvan Ravan	Churchill High School

*participated in the 2017 study camp

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FOR IMMEDIATE RELEASE

U.S. team chosen for the 50th International Chemistry Olympiad

WASHINGTON, June 27, 2018 — The American Chemical Society (ACS) is proud to announce the team that will represent the U.S. at the [50th International Chemistry Olympiad](#) in Bratislava, Slovakia, and Prague, Czech Republic, on July 19-29.

The members of the U.S. team are:

Yutong Dai of Princeton International School of Mathematics and Science, Princeton, New Jersey

Michelle Lu of Pomperaug High School, Southbury, Connecticut

Jeffrey Shi of Marcellus High School, Marcellus, New York

Andrew Wu of Park Tudor School, Indianapolis, Indiana

Alternates:

1st alternate: Aniket Dehadrai of Oklahoma School of Science and Mathematics, Oklahoma City, Oklahoma

2nd alternate: Edward Jin of Arnold O. Beckman High School, Irvine, California



Left to right: Lu, Shi, Wu and Dai

Credit: Christine Saber
[Click here to download the image.](#)

The U.S. team will travel to the International Chemistry Olympiad accompanied by these mentors:
Christine Saber, Ph.D., Gannon University, Pennsylvania, head mentor
Michael Danahy, Ph.D., Bowdoin College, Maine, college mentor
Silvia Atim, Ph.D., University of South Carolina, South Carolina, college mentor

The competition for the U.S. team was fierce, beginning with a multiple-choice exam taken by nearly 17,000 high school students across the country. The top 1,000 then advanced to take the National Chemistry Olympiad test. From there, the top 20 went on to a study camp at the U.S. Air Force Academy in Colorado Springs, Colorado, where four were selected for the team along with two as alternates.

The International Chemistry Olympiad originated with Czechoslovakia, Poland and Hungary in 1968. Soon, other Eastern European countries joined the event; Western Europe began participating in 1974. The first U.S. team competed in 1984, winning one silver and two bronze medals.

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FOR IMMEDIATE RELEASE

US team brings home the gold from the International Chemistry Olympiad

WASHINGTON, Aug. 1, 2018 — The American Chemical Society (ACS) is proud to announce that the four high school students who represented the U.S. at the annual [International Chemistry Olympiad \(IChO\)](#) each earned a gold medal. This is the second year in a row in which the U.S. team earned four golds. The competition was held in Bratislava, Slovakia, and Prague, Czech Republic, on July 19-29.

The members of the highest-performing team in the history of America's participation in the event are:

Jeffrey Shi of Marcellus High School, Marcellus, New York, who placed 4th

Michelle Lu of Pomperaug High School, Southbury, Connecticut, who placed 10th

Andrew Wu of Park Tudor School, Indianapolis, Indiana, who placed 12th

Yutong Dai of Princeton International School of Mathematics and Science, Princeton, New Jersey, who placed 13th

The competition for the medals was fierce; the U.S. team competed with 300 high school students from 76 countries.



Left to right: Wu, Dai, Lu, Shi

Credit: Christine Saber

Speaking with the ACS newsmagazine [Chemical & Engineering News](#), Dai said that as soon as she learned of the results, she texted her parents, who had been eagerly waiting to hear the news. "I'm so proud that we as a team won four golds," Dai says. "It's so exciting."

Lu said the theoretical and practical exams "touched on a lot of interesting topics that I think a lot of us had never thought about before, like DNA equilibrium. It was quite interesting to work through."

Shi said it was a unique experience to meet chemistry students from all over the world. "It was really interesting learning about their countries, their education systems, and how their selection process for the chemistry olympiad works. It's really different in every country," he says.

Wu said the team was unified in its goal of getting four gold medals this year. "We were on the same page, and we helped each other do the best that we could," he said. "I'm really honored to be a part of such an amazing team."

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ACS has sponsored the American team annually since the U.S. joined the Olympiad in 1984. Principal funding is through the ACS Donald F. and Mildred Topp Othmer Olympiad Endowment, with additional support from the U.S. Air Force Academy, Department of Chemistry; Carolina Biological Supply Company; National Geographic Learning|Cengage Learning; Fisher Science Education; Flinn Scientific Inc.; Pearson; Texas Instruments Inc.; University Science Books; and Wiley & Sons Publishers.

The International Chemistry Olympiad originated with Czechoslovakia, Poland and Hungary in 1968. Soon, other Eastern European countries joined the event; Western Europe began participating in 1974. The first U.S. team competed in 1984, winning one silver and two bronze medals.

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► 2018 ACS Fellows

The American Chemical Society has named 51 members as ACS Fellows. The new fellows will be feted at the society's fall national meeting in Boston this August.

The fellows program began in 2009 as a way to recognize and honor ACS members for outstanding achievements in and contributions to science, the profession, and ACS.

Nominations for the 2019 class of ACS Fellows will open in the first quarter of next year. Additional information about the program, including a list of fellows named in earlier years, is available at www.acs.org/fellows.—LINDA WANG

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U.S. team heads to International Chemistry Olympiad

Four high school students have secured a spot on the team representing the U.S. at the 50th International Chemistry Olympiad, which will start in Bratislava, Slovakia, on July 19 and end in Prague on July 29.

The U.S. team was finalized after an intensive two-week Chemistry Olympiad Study Camp, sponsored by the American Chemical Society and held at the U.S. Air Force Academy.

The students are **Yutong Dai**, who just graduated from Princeton International School of Mathematics & Science in Princeton, N.J.; **Michelle Lu**, a rising junior at Pomperaug High School in Southbury, Conn.; **Jeffrey Shi**, a rising senior at Marcellus High School in Marcellus, N.Y.; and **Andrew Wu**, a rising senior at Park Tudor School in Indianapolis.

The first alternate is **Aniket**

Dehadrai, who recently graduated from Oklahoma School of Science & Mathematics in Oklahoma City. The second alternate is **Edward Jin**, a rising senior at Arnold O. Beckman High School in Irvine, Calif.

"We're very excited," says head mentor Christine Saber, an assistant professor of chemistry at Gannon University. "Each year, these students appear to be stronger and stronger in the chemical principles and practices. They are an inspiration to me."

"It's still sinking in," Lu says of making the team. "It's been very rewarding to be able to participate in this camp. There's always so much more to learn, and I hope to make the U.S. proud."

Wu says his passion for chemistry started during his freshman year of high school. "I had a really amazing teacher. He taught me a lot of chemistry."

"I'm excited about meeting students from other countries," Shi says of the international competition. "I think that will be really helpful in both developing my network and just learning about the international community in general."—LINDA WANG



Michelle Lu (from left), Jeffrey Shi, Andrew Wu, and Yutong Dai.

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Concentrates

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ACS NEWS

4 golds for U.S. olympiad team

High school students turn in a top performance for the second year in a row

The U.S. won four gold medals for the second year in a row at the International Chemistry Olympiad, which began this year on July 19 in Slovakia and concluded on July 29 in the Czech Republic. China, which won the top-scoring gold medal, was the only other country to win four golds this year.

"This is the highest performance we've ever had in this competition," says Christine Saber, head mentor for the U.S. team and an assistant chemistry professor at Gannon University. "I could not be more proud of these students. They were equally strong in both the theory and the practical, which is what led them to be our strongest performers yet."

The U.S. team, which is sponsored by the American Chemical Society, was made up of Yutong Dai of Princeton International School of Mathematics & Science in Princeton, N.J.; Michelle Lu of Pomperaug High School in Southbury, Conn.; Jeffrey Shi of Marcellus High School in Marcellus, N.Y.; and Andrew Wu of Park Tudor School in Indianapolis.

Shi, Lu, Wu, and Dai placed fourth, 10th, 12th, and 13th, respectively, in the gold-medal category. This year, competition organizers awarded a total of 35 gold medals, 65 silver medals, and 95 bronze medals to the group of 300 high school students representing 76 countries. Each country is allowed to send up to four students to the competition.

"I think we all realized at the same time,

and it was just a big shock," says Lu of learning about her team's accomplishment. "We were all just very, very excited at that moment."

Dai says that as soon as she learned of the results, she texted her parents, who had been eagerly waiting for the news. "I'm so proud that we as a team won four golds," Dai says. "It's so exciting."

Shi says it was a unique experience to meet chemistry students from all over the world. "It was really interesting learning about their countries, their education systems, and how their selection process for the chemistry olympiad works. It's really different in every country," he says.

Wu says the team was unified in their goal of getting four gold medals this year. "We were on the same page, and we helped each other do the best that we could," he says. "I'm really honored to be a part of such an amazing team."

Lu says the theoretical and practical exams "touched on a lot of interesting topics that I think a lot of us had never thought about before, like DNA equilibrium. It was quite interesting to work through."

Saber explains that the practical exam consisted of three tasks.

One of the experiments involved a clock reaction that yielded a flash of blue light, which was emblematic of the competi-



Andrew Wu, Yutong Dai, Michelle Lu, and Jeffrey Shi celebrate their gold-medal wins.

tion's logo of a scientist with blue hair.

The theoretical exam, Saber says, included eight tasks that involved an even mix of organic, physical, analytical, and biochemistry. One of the questions, for example, involved the synthesis of β -caryophyllene. Another question involved the synthesis of coprine, a natural compound in mushrooms found in many Czech and Slovak dishes. Students were also asked to determine the crystal structure, absorption, and emission properties of Bohemian garnet.

Aside from the exams, students participated in excursions that introduced them to the cultures of Slovakia and the Czech Republic, such as visiting a mining museum in Slovakia.

Mentors Michael Danahy of Bowdoin College and Silvia Atim of the University of South Carolina also accompanied the students during the trip.

This fall, Shi and Wu will be high school seniors, and Lu will be starting her junior year of high school. Dai will be starting college at MIT. "These students are just amazing," Saber says. "They are our future scientists and potential Nobel laureates."—TIEN NGUYEN and LINDA WANG

The olympiad at a glance

- Students: 300
- Participating countries: 76
- Medals awarded: 195
- Top-performing countries
 - China, U.S.
 - Czech Republic, Korea, U.K.
 - India, Russia, Singapore

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USAFA FACULTY AND STAFF

INDIVIDUAL

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Dr. Kimberly Gardner	Camp Director
Lt Col Sarah Isbill	Assistant Camp Director
Dr. Keith Oppenheim	Physical Chemistry Lecturer
Dr. Kristina Proctor	Analytical Chemistry Lecture
Dr. Ronald Furstenau	Physical Chemistry Lecturer
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Mrs. Jane Johnson	Laboratory Prep

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Dr. Silvia Atim	College Mentor
Dr. Michael Danahy	College Mentor
Dr. Christine Saber	Head Mentor
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The U.S. National Chemistry Olympiad is a Program of the American Chemical Society

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