

Annual Report
2018-19

Department of Chemistry

I ILLINOIS

CHEMISTRY AT ILLINOIS

We conduct **RESEARCH** with courage—willing to step outside the box and try something new.

We approach **EDUCATION** with curiosity—because sometimes questions are more important than answers.

We pursue **GREATNESS** with passion—confident that together we can achieve extraordinary things.

Building on a rich history of achievement, we aspire to an even brighter future.
WITH YOU. WITH ILLINOIS.

Visit www.chemistry.illinois.edu to learn more.

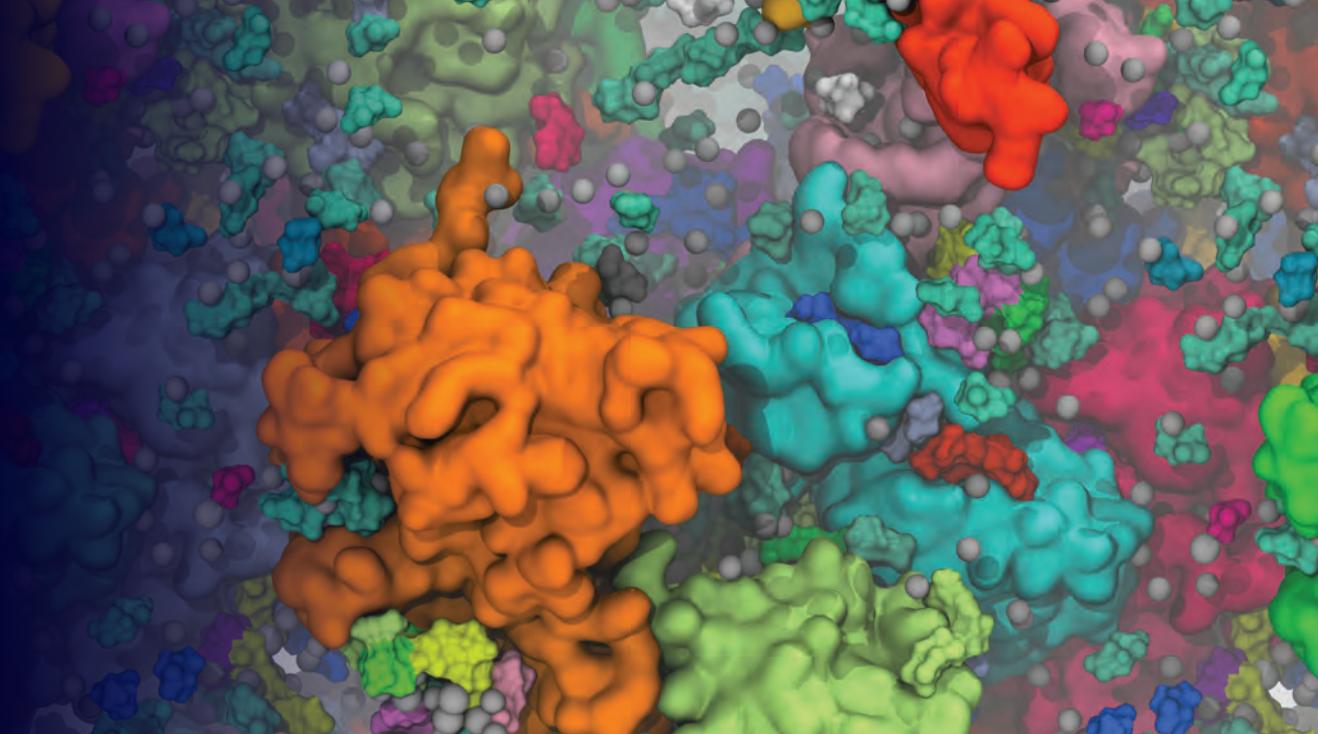


Image: Meredith Rickard

2018-19 HIGHLIGHTS

First round of
Chemistry Discovery
Fund projects
(August 2018)



Noyes Lab general
classroom renovation
complete
(September 2018)

Prof. Chad Rienstra
invested as the John
Witt Professor of
Chemistry
(November 2018)



Dedication of an ACS
National Historic
Chemical Landmark in
honor of alumnus
St. Elmo Brady
(February 2019)

Prof. Zaida (Zan)
Luthey-Schulten
invested as the
Murchison-Mallory
Endowed Chair in
Chemistry
(March 2019)

Prof. Catherine J.
Murphy inducted into
American Academy of
Arts and Sciences
(April 2019)



Alumni Reception
at Nalco Water,
Naperville, IL
(May 2019)

Alumnus Qing Cao
(PhD, '09) joins U of I
faculty, with affiliation in
chemistry
(August 2018)

Prof. Lisa Olshansky
joins faculty in the
inorganic chemistry area
(August 2018)

Prof. Marty Burke co-
founds Ambys Medicines
to pioneer regenerative
medicine therapies for
serious liver disease
(August 2018)



John (PhD, '61) and
Margaret Witt receive
the 2018 LAS Dean's
Quadrangle Award
(October 2018)

Prof. Liviu Mirica joins
faculty in the inorganic
and chemical biology
areas
(January 2019)

Alumni Reception
at ACS Orlando
(March 2019)

Convocation, with
speakers May Lee (MS
'74, PhD '76) and Ving
Lee (MS '73, PhD '75)
(May 2019)



Alumni Career
Panel Discussion,
Urbana, IL
(May 2019)

ALUMNI

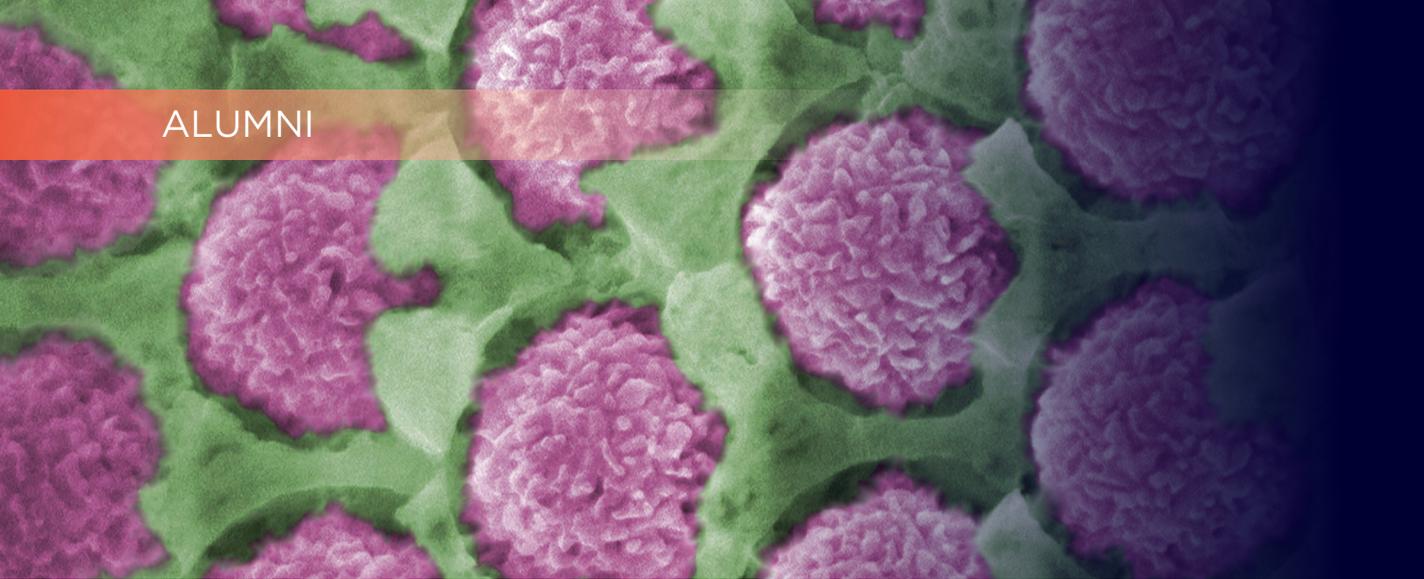
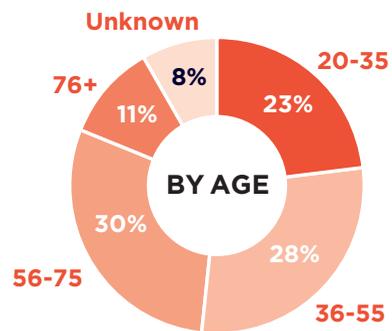


Image: Jinyun Liu



FROM 53 COUNTRIES

9513 ALUMNI



TOP 5 U.S. STATES FOR ALUMNI

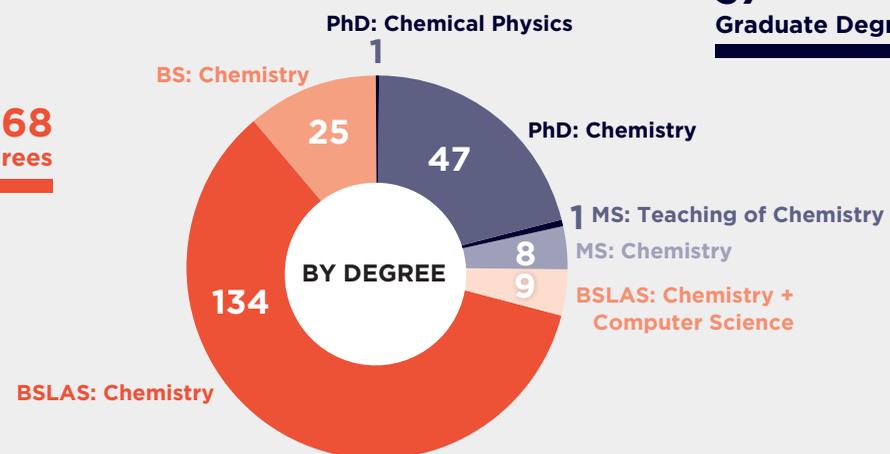


State	#	% of US total
Illinois	3322	36%
California	817	9%
Pennsylvania	330	4%
Texas	317	3%
Michigan	264	3%
Total of Top 5	5050	55%

GET TO KNOW OUR NEWEST ALUMNI

225 2018-19 GRADS

168
Undergraduate Degrees



57
Graduate Degrees

UNDERGRADUATE ALUMNI SUCCESS

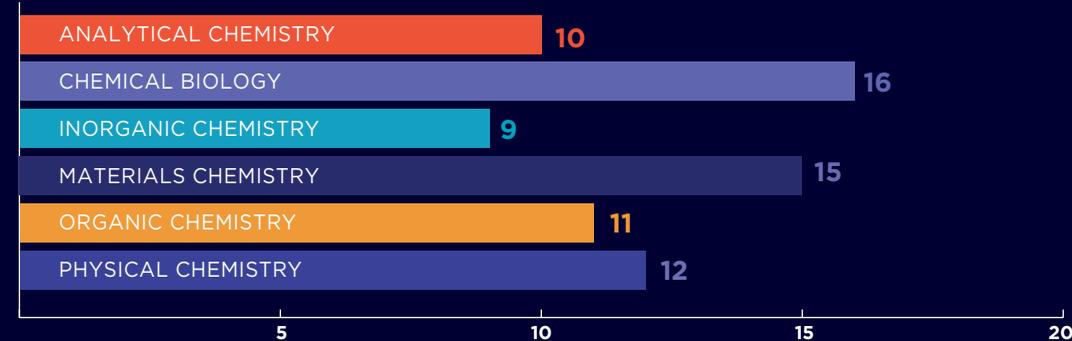
CLASS OVERVIEW	
Secured First Destination	90%
PRIMARY STATUS	
Employed	60%
Continuing Education	30%
Volunteer/Service	0%
Seeking	10%
Other	0%

FULL TIME EMPLOYED SALARY	
Average Salary	\$ 68,195.00
25th Percentile	\$ 60,000.00
50th Percentile	\$ 70,000.00
75th Percentile	\$ 74,000.00

Graduate success data is self-reported and represents a 74% response rate (254 of 343) from those who received an undergraduate degree in 2017-18 from the School of Chemical Sciences (Department of Chemistry and Department of Chemical and Biomolecular Engineering). Visit illinoisuccess.illinois.edu for more information.

FACULTY AND RESEARCH

TENURE-TRACK FACULTY BY RESEARCH AREA



*Many faculty conduct research in multiple areas

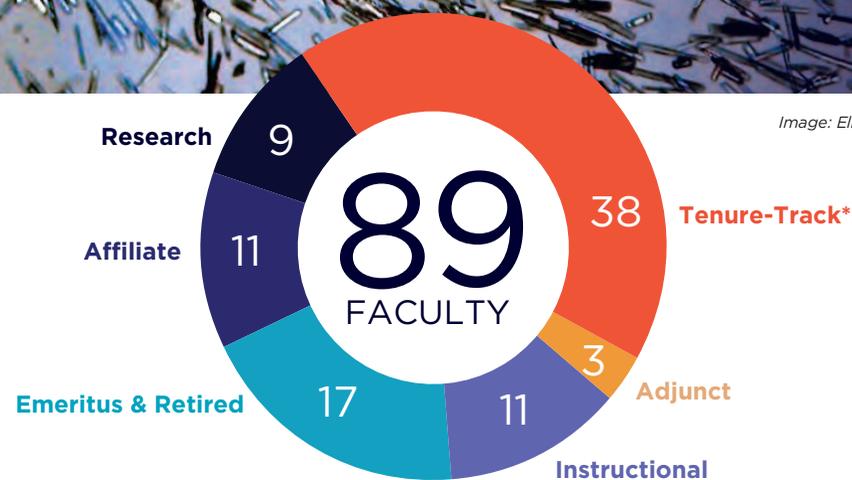


Image: Elizabeth Murphy

*Includes full- and part-time

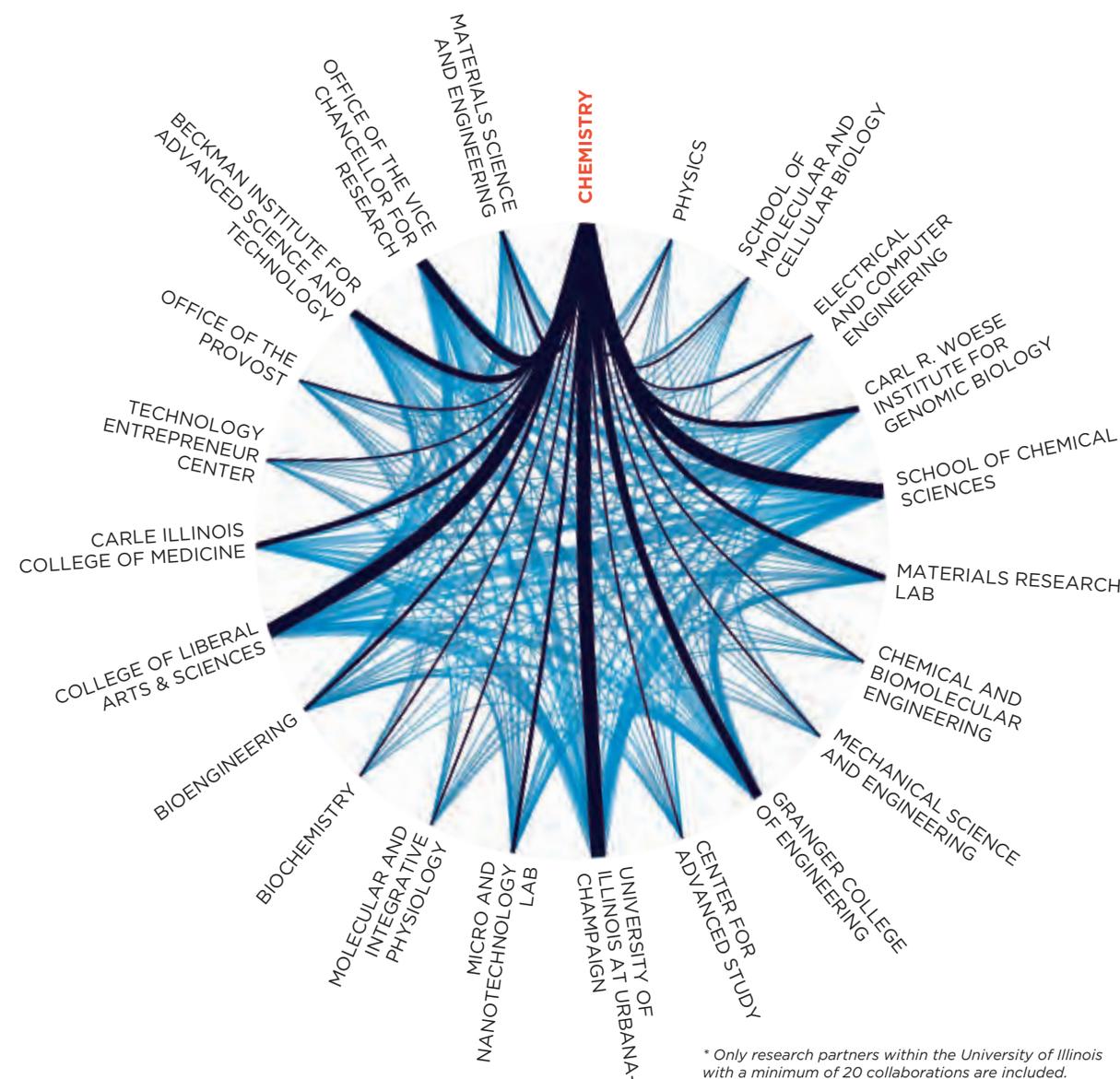
2018-19 RESEARCH ACHIEVEMENTS



NEW RESEARCH FUNDING

Funding Source	Proposals Funded	Amount
NASA	1	\$ 45,000
National Institutes of Health	14	\$ 13,762,845
National Science Foundation	5	\$ 2,250,915
Private Funding	14	\$ 2,151,437
U.S. Department of Defense	3	\$ 2,217,624
U.S. Department of Energy	6	\$ 695,000
Total	43	\$ 21,122,821

AN INTERDISCIPLINARY APPROACH



* Only research partners within the University of Illinois with a minimum of 20 collaborations are included. Data is from calendar years 2018 and 2019 and may be incomplete. Visit experts.illinois.edu to learn more about our collaborative research output.

STUDENTS



558
undergraduate

285
graduate

107
(19%) participated in research

39
(7%) received a departmental/
donor-funded scholarship

\$158,000
awarded in departmental/donor-
funded scholarships

Image: Li Huey

Funding

Research Assistantship	148
Teaching Assistantship	91
Full Fellowship	46

Total 285

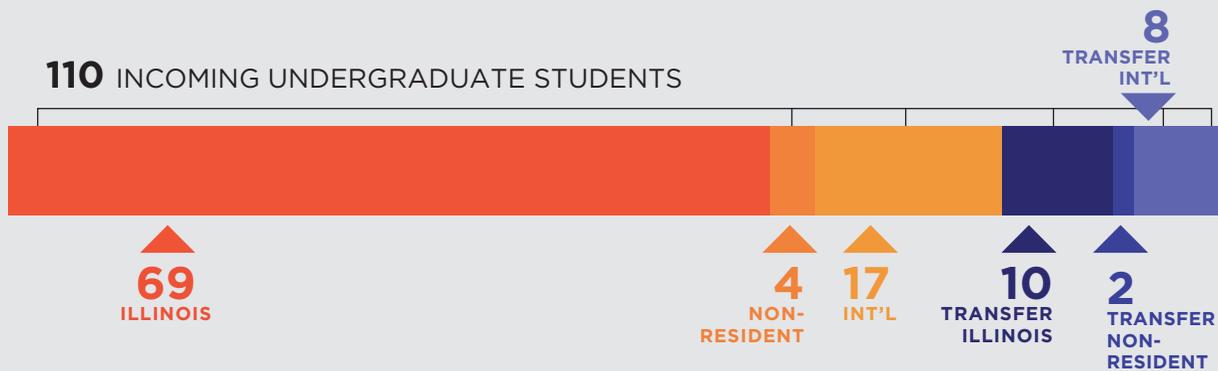
Fellowships (full & partial)

Departmental/Donor-Funded	144
External - NSF	24
External - Other	14
Campus	14

Total 196

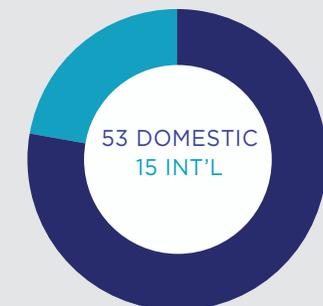
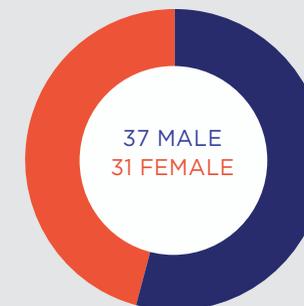
GET TO KNOW OUR INCOMING STUDENTS

110 INCOMING UNDERGRADUATE STUDENTS



25 URM* undergraduate students | **23%** of total

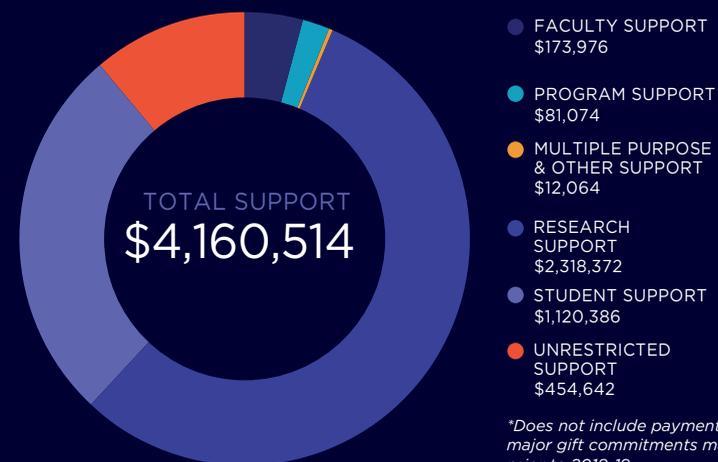
68 INCOMING GRADUATE STUDENTS



6 URM* Male : **9%** of total | **4** URM* Female : **6%** of total

This data is for our newest class of students—incoming in 2019-20.
*Underrepresented Minority

We are grateful to our alumni and friends for their consistent support of our faculty, students, and programs. Thank you for making 2018-19 another successful year. Your generosity and partnership truly make a difference.



**Does not include payments on major gift commitments made prior to 2018-19.*

29 | 13 endowed
16 current use
NEW GIFT FUNDS

395
DONORS

609
GIFTS

Image: Melinda Sindoro

THE FOLLOWING LISTS ACTIVE NAMED FUNDS ENDOWED BY OUR ALUMNI AND FRIENDS AS OF JUNE 30, 2019. FUNDS NEWLY ESTABLISHED IN 2018-19 ARE INDICATED IN BLUE.

FACULTY SUPPORT

Charles W. and Genevieve M. Walton Endowed Faculty Excellence in Chemistry Fund

James R. Eiszner Endowed Chair in Chemistry Fund

James R. Eiszner Family Endowed Chair in Chemistry Fund

John Witt Professorship in Chemistry Fund

Kenneth L. Rinehart Jr. Endowed Chair in Natural Products Chemistry Fund

Marvin T. Schmidt Professorship in Chemistry Fund

May and Ving Lee Professorship for Chemical Innovation Endowment Fund

Murchison-Mallory Endowed Chair in Chemistry Fund

Peixin He and Xiaoming Chen Endowment for Chemistry

Peter C. and Gretchen Miller Markunas Professorship in Analytical Chemistry Fund

Richard E. Heckert Chemistry Fund

MULTIPLE PURPOSE AND OTHER SUPPORT

Anuj Khandelwal Memorial Fund

Carl Shipp Marvel Fund

Charles W. and Genevieve M. Walton Chemistry Endowment Fund

Dr. Joanne G. Rubin Endowment Fund

Eugene P. Bertin Chemistry Fund

John and Margaret Witt Chemistry Endowment Fund

John C. Bailar Jr. and Florence C. Bailar Lectureship Fund

Jon T. Hougen Memorial Award Fund

Kenneth L. Rinehart Excellence in Chemistry Fund

Mark Pytosh Endowment for Excellence in Chemistry Fund

Peter and Sandra Beak Chemistry Fund

Phillip W. Rhymer Fund in Inorganic Chemistry

Reynold C. Fuson Memorial Award in Chemistry Fund

Sheldon G. Shore Inorganic Chemistry Support Endowment Fund

Vanderveer Voorhees Memorial Fund

William H. Pirkle Endowment Fund

PROGRAM SUPPORT

Beak-Pines Organic Area Allerton Conference Fund

Dr. Yulan C. Tong Stoesser Lecture Endowment Fund

Frontiers in Organic Chemistry Quasi Endowment Fund

Suslick-Sessler Lecture Series Fund

T.M. Balthazor Endowment Fund

Willis H. Flygare Memorial Chemistry Lecture Fund

STUDENT SUPPORT

Aldo J. and Jean B. Crovetto Graduate Fellowship in Chemistry Fund

Algernon DeWaters Gorman Memorial Prize in Chemistry Fund

Arthur and Lenore Matheson Fund

Arthur Sloan Estate Prizes in Chemistry Fund

Brad R. and Suzanne P. Henke Scholarship Fund

Bruno H. Wojcik Memorial Scholarship Fund

Carl S. Marvel Fellowship Fund

Carlos Montezuma Memorial Scholarship in Chemistry Fund

Chester W. Hannum Scholarship in Chemistry Fund

Chia-Chen Chu Fellowship Fund

Clarence A. and Adelaide J. Muhl Scholarship Fund

David W. Robertson Endowment Fund Supported by Pfizer and Friends

Dr. Gladys Quinty Dawson Endowed Scholarship Fund

Dr. Virgil Walter Gash Scholarship for Excellence in Chemistry Fund

Eugene P. and Julianne V. Janulis Graduate Fellowship Fund

Falkner Fund for Undergraduate Research

Frank and Laura Verbanac Graduate Organic Chemistry Award Fund

Gerald R. Feistel Fellowship Fund

Glenn E. and Barbara R. Ullyot Fund

Glenn Rhodes Wilson Scholarships in Chemistry Fund

Harold and Edith Hoots Scholarship Fund

Harold R. Snyder Fund in Organic Chemistry

Harry G. Drickamer Endowment Fund

Herbert Gutowsky Scholarship Fund

Homer J. and Edith M. Birch Scholarship Fund

J. C. Martin Memorial Student Fund in Chemistry

J. J. Lagowski Scholarship in Chemistry Fund

James Newton Coker Class of 1950 Graduate Scholarship Fund

James R. Beck Fellowship in Microbiology and Chemistry Fund

John C. Bailar Fellowship Fund

John E. Giesekeing Scholarship Fund

John S. McVickar Scholarship Fund in Chemistry

Josephine G. Geerdes Graduate Travel Award Fund in Physical Chemistry

Juanita D. Perel Fellowship Fund

Lebus Graduate Scholar Award Fund

Lester E. and Kathleen A. Coleman Fellowship Fund

Limper Scholarship Fund

Mary Kay Kaufmann Undergraduate Scholarship Fund

Mary-Dell and Scott Chilton Scholarship for Undergraduate Research Fund

Minn Scholarship Fund

Mr. Chinoree T. and Mrs. Kimiyo Enta Endowment Fund

Mr. Shin-Cheng Yu and Dr. June C. Y. Tsao-Yu Memorial Student Travel Award Fund

Oliver J. Bell Merit Scholarship Fund

Peter Beak Scholarship for Undergraduate Research Fund

Peter C. and Gretchen Miller Markunas Fund

Professor Gary Schuster Mentoring Scholarship Fund

Professor Peter Beak Graduate Travel Scholarship Fund

R. C. Fuson Fellowship Fund

Ralph E. Telford Scholarship Fund

Robert F. Carr Fellowship in Chemistry Fund

Robert H. Doremus Scholarship Fund

Robert J. Morris Graduate Students in Inorganic Chemistry Travel Award Endowment Fund

Robert Lyle Schmidt Memorial Scholarship Fund

Seemon H. and Natalie Pines Endowment Fund

Seemon H. Pines Award Fund

Seemon H. Pines Endowment for Research Fellowships in Chemistry

Spudich Summer Research Scholarship Fund

Stephen J. Elledge Scholarship for Undergraduate Research Fund

Steven R. Schmid Chemistry Scholarship Fund

Ted and Audrey Brown Scholarships in Chemistry Fund

Therald Moeller Chemistry Endowment Fund

Timothy A. Nieman Memorial Scholarship Fund

Walter Burrows Brown Fellowship in Chemical Research Fund

Walter G. Klemperer Dissertation Award in Materials Chemistry Fund

Worth H. Rodebush Award Fund

UNRESTRICTED SUPPORT

Anthony W. Czarnik Endowment Fund

Dr. Frank Hovorka Fund in Chemistry

Dr. Meredith Mallory Jr. Chemistry Fund

Eugene and Julianne Janulis Department of Chemistry Fund

Harriet A. Harlin Endowment Fund

James R. Beck Endowment Fund

Jay and Ann Schenck Endowment Fund

Joseph M. Ciskowski Endowment Fund

Maurice J. Peterson Department of Chemistry Quasi-Endowment Fund

Max and Charlotte Mueller Chemistry Endowment Fund

Paul V. Smith Endowment Fund

R. C. Fuson Chemistry Fund

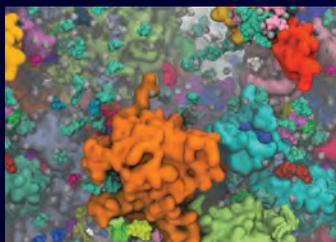
Reynold C. Fuson Beneficial Interest Trust Fund

Robert A. and Eleanor A. Flinn Endowment Fund

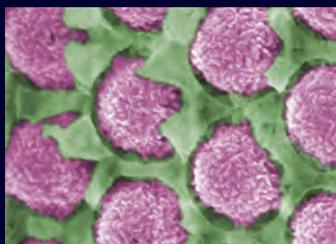
Robert M. Joyce Fund

Roger Adams Chemistry Fund

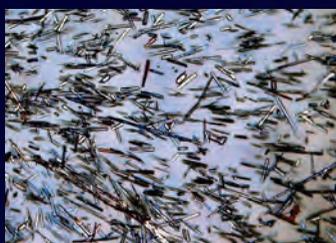
The science images appearing in this report were created by students, faculty, and postdoctoral researchers in the Department of Chemistry.



Meredith Rickard (Martin Gruebele and Taras Pogorelov groups)
Proteins stick to one another in the cytoplasm of living cells, and also crowd one another, using up room needed for proteins to fluctuate and move around for their function. The image (similar to the cover featured on a recent issue of *Chemical Reviews*) highlights both proteins, as well as small metabolite molecules and ions that define the intracellular environment.



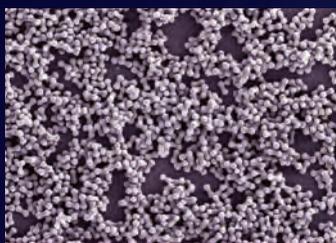
Jinyun Liu (Paul Braun group)
This is a scanning electron microscope image of a three-dimensionally graphene-sandwiched secondary battery cathode. The fabricated cathode, consisting of an electrically conductive 4-10 layer thick graphene sheet (green) embedded within electrochemically active vanadium pentoxide (purple), exhibits a high electrochemical performance including high capacity and long cycling life (>2000 cycles).



Elizabeth Murphy (Paul Braun group) *
Proteins have tremendous potential as biological pharmaceuticals and drug targets, assuming their stability can be maintained. This research demonstrated that zwitterionic poly(sulfobetaine) (pSB) chains in solution can interact with proteins directly and affect their stability. Displayed is an inspection light microscope image of pSB in solution.



Li Huey Tan (Yi Lu group)
Hexagonal rods form from DNA-directed colloidal reduction of silver on gold plates. The outer image, obtained via scanning electron microscopy, shows the overall morphology of the particle. This image is torn back, uncovering a scanning transmission electron micrograph of the same particles, revealing the gold plates (bright regions) hidden inside



Melinda Sindoro (Steve Granick group)
This is a scanning electron micrograph image of weakly ferromagnetic hematite crystals in the shape of peanuts. The highly asymmetric morphology is obtained by aging the particle in sodium sulfate to modulate its facets.

* Undergraduate Winner, Beckman Institute 2019 Research Image Contest

On the cover:

Andres Arango (Emad Tajkhorshid Group)
Cytochrome P450s (CYPs) are responsible for the metabolism of many exogenous and endogenous biomolecules. This image depicts the molecular dynamics simulations of virodhamine, an endogenous inhibitor of CYP2J2, the predominant CYP in heart tissue.

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SCHOOL OF CHEMICAL SCIENCES

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