

Herbert C. Brown

***Lectures in
Organic
Chemistry***

2022

**Department of Chemistry
Purdue University
West Lafayette, Indiana**



Herbert Charles and Sarah Baylen Brown

**THE THIRTY-SEVENTH HERBERT C. BROWN
LECTURES IN ORGANIC CHEMISTRY**

Thursday, April 21, 2022

STEWART CENTER, ROOM 218

SCHEDULE OF EVENTS

8:55 – 9:00 a.m.	<i>Opening Remarks</i>
9:00 – 10:00 a.m.	Dawei Ma , Shanghai Institute of Organic Chemistry <i>“Exploring New Methodologies to Enhance Synthetic Efficiency”</i> (Chair: Mingji Dai)
10:00 – 10:15 a.m.	Discussion
10:15 – 11:00 a.m.	Coffee Break / Poster Session (STEW 202/206)
11:00 a.m. – 12:00 p.m.	Richmond Sarpong , University of California, Berkeley <i>“Break-it-to-Make-it Strategies for Chemical Synthesis Inspired by Complex Natural Products”</i> (Chair: Bram Axelrod)
12:00 – 12:15 p.m.	Discussion
12:15 – 1:30 p.m.	LUNCH (STEW 302/306)
1:30 – 2:30 p.m.	Amir Hoveyda , Boston College Recipient of the 2020 ACS Herbert C. Brown Award for Creative Research in Synthetic Methods <i>“A New Landscape for Catalytic Multicomponent Reactions”</i> (Chair: Ryan Altman)
2:30 – 2:45 p.m.	Discussion
2:45 – 3:00 p.m.	Baiyang Jiang , Purdue University (H.C. Brown Graduate Student Research Award Winner) <i>“Towards the Total Syntheses of Hamigerans with a [6–7–5] Tricyclic Skeleton”</i> (Advisor: Mingji Dai)
3:00 – 3:15 p.m.	Shruti Biyani , Purdue University (H.C. Brown Graduate Student Research Award Winner) <i>“High Throughput Experimentation and Telescoped Flow Chemistry Applied to Target-Oriented Synthesis”</i> (Advisor: David Thompson)
3:15 – 4:00 p.m.	Coffee Break / Poster Session (STEW 202/206)
4:00 – 5:00 p.m.	Huw Davies , Emory University Recipient of the 2019 ACS Herbert C. Brown Award for Creative Research in Synthetic Methods <i>“Catalyst-Controlled Site-Selective and Enantioselective C-H Functionalization”</i> (Chair: Chris Uyeda)
5:00 – 5:15 p.m.	Discussion
5:15 – 6:30 p.m.	Reception and Announcement of Poster Award Winners STEW 302/306

DAWEI MA

State Key Laboratory of Bioorganic & Natural Products Chemistry
Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences
Shanghai, China



Title of Lecture: “Exploring New Methodologies to Enhance Synthetic Efficiency”

Phone: 86-021-54925130

Email: madw@sioc.ac.cn

Education:

1989 Ph.D., Chemistry, Shanghai Institute of Organic Chemistry
1984 B.S., Chemistry, Shandong University

Research and Professional Experience

2000-present	Director, State Key Laboratory of Bioorganic Chemistry, Shanghai Institute of Organic Chemistry
1995-present	Research Professor, Shanghai Institute of Organic Chemistry
1994-1995	Research Associate Professor, Shanghai Institute of Organic Chemistry
1990-1994	Postdoctoral Fellow, University of Pittsburgh & Mayo Clinic

Honors and Awards

2019	Outstanding Science and Technology Achievement Prize of Chinese Academy of Sciences
2019	Member, Chinese Academy of Sciences
2018	Arthur C. Cope Scholars Award, American Chemical Society
2018	Future Science Prize-Physical Sciences
2016	Nien-Chu C. Yang Memorial Lectureship Award
2014	Cathy Award
2007	National Natural Science Award, Second Class
2006	Eli Lilly Scientific Excellence Award
2001	Top Ten Outstanding Youth of Shanghai City
2000	National Natural Science Award, Second Class
1999	JAPS Visiting Scholar Award
1998	Outstanding Young Scholar, Qiushi Science and Technology

Research Interests

Total synthesis and SAR studies of complex natural products; development of new synthetic methodologies and their applications in the synthesis of biologically and pharmaceutically important molecules; and discovery of selective modulators targeted to metabotropic glutamate receptors (mGluRs), protein kinase C (PKC), chemokine receptors, matrix metalloproteinase, protease and apoptosis pathway.

RICHMOND SARPONG

University of California, Berkeley
Department of Chemistry
Berkeley, California



Title of Lecture: “Break-it-to-Make-it Strategies for Chemical Synthesis Inspired by Complex Natural Products”

Phone: 510-643-6312

Email: rsarpong@berkeley.edu

Education:

2001 Ph.D., Organic Chemistry, Princeton University
1995 B.A., Chemistry, Macalester College

Research and Professional Experience

2018-present	Executive Associate Dean, College of Chemistry, University of California, Berkeley
2014-present	Full Professor, Department of Chemistry, University of California, Berkeley
2015-2018	Vice-Chair for Synthetic Chemistry, Department of Chemistry, University of California, Berkeley
2010-2014	Associate Professor, Department of Chemistry, University of California, Berkeley
2004-2010	Assistant Professor, Department of Chemistry, University of California, Berkeley
2001-2004	Postdoctoral Fellow, California Institute of Technology

Honors and Awards

Alexander von Humboldt Research Award (2022); ACS Award for Creative Work in Synthetic Organic Chemistry (2022); ACS-DOC Edward Leete Award (2021); Elected Fellow of the American Chemical Society (2019); ISHC Alan R. Katritzky Award (2019); Mukaiyama Award of the Synthetic Society of Organic Chemistry Japan (2019); John Simon Guggenheim Fellow (2017); Noyce Prize for Excellence in Undergraduate Teaching (2016); Schülich Visiting Professor (Technion, Israel) (2015–2016); Royal Society of Chemistry Synthetic Organic Chemistry Award (2015); ACS Arthur C. Cope Scholar (2015); Fuson Lecturer, University of Illinois Urbana Champaign (2014); Japan Society for the Promotion of Science Fellowship (2013); Paul Dowd Lecturer, University of Pittsburgh (2013); Honorary Lifetime Membership of the Israel Chemical Society (2012); Society of Synthetic Organic Chemistry Japan Lectureship Award (2011); Ginsberg Lecturer (Technion, Israel) (2011); Roche Excellence in Organic Chemistry Award (2010); UC Berkeley Department of Chemistry Teaching Award (2009); Camille Dreyfus Teacher-Scholar Award (2009); Alfred P. Sloan Foundation Fellow (2009); American Cancer Society Research Scholar (2009-2012); Eli Lilly Grantee Award (2009-2010); National Academies of Science Kavli Fellow (2008); University of California Hellman Faculty Award (2008-2009); AstraZeneca Excellence in Chemistry Award (2008); Dupont Young Professor Award (2008-2010); Johnson and Johnson Focused Giving Award (2008-2010); GlaxoSmithKline Scholar Award (2008); Amgen Young Investigator Award (2007); National Science Foundation CAREER Award (2007-2011); Abbott Young Investigator Award (2007-2008); Eli Lilly Young Investigator Grantee (2004).

Research Interests

At Berkeley, Richmond’s laboratory focuses on the synthesis of bioactive complex organic molecules, with a particular focus on secondary metabolites that come from marine or terrestrial flora and fauna. These natural products continue to serve as the inspiration for new medicines. It is Richmond’s hope that through the work in his laboratory, he and his coworkers will uncover methods and strategies for synthesis that may contribute to more efficient ways to prepare bioactive compounds that may inspire new medicines.

AMIR HOVEYDA

Boston College
Department of Chemistry
Chestnut Hill, Massachusetts

University of Strasbourg & CNRS
Institut de Science et d'Ingénierie Supramoléculaires
Strasbourg, France



Title of Lecture: “A New Landscape for Catalytic Multicomponent Reactions”

Phone: 617-552-3618

Email: amir.hoveyda@bc.edu

Education:

1986 Ph.D., Yale University

1981 B.A., Columbia University

Research and Professional Experience

2019-present	Director, Institute de Science et d'Ingénierie Supramoléculaires, University of Strasbourg, Strasbourg, France
2014-present	Distinguished Visiting Professor, Technion-Israel Institute of Technology, Haifa, Israel
2006-2017	Chairperson of Chemistry Department, Boston College
1998-present	Patricia and Joseph T. '49 Vanderslice Millennium Professor, Boston College
1994-1998	Professor, Boston College
1990-1994	Assistant Professor, Boston College
1987-1988	Pfizer Central Research, Cancer Group
1986-87 & 1988-90	American Cancer Society Postdoctoral Fellow, Harvard University

Honors and Awards

Gutenberg Chair, 2020; American Chemical Society *H. C. Brown Award for Creative Research in Synthetic Methods*, 2020; Japan Society for Promotion of Science (JSPS) *Invitation Fellowship*, 2016; *Eni Prize*, 2014; American Chemical Society *Award for Creative Work in Organic Synthesis*, 2014; *Yamada-Koga Prize*, 2010; Harvard University *Tishler Prize*, 2007; National Institutes of Health *MERIT Award*, 2005; Royal Society *Wolfson Research Merit Award*, 2004; National Science Foundation *Creativity Award*, 2004; Boston College *Distinguished Teaching Award*, 2002; ExxonMobil *Excellence in Catalysis Award*, 2002; Novartis *Research Award in Synthetic Organic Chemistry*, 2001; Boston College *Distinguished Senior Faculty Research Award*, 2000; American Chemical Society *Cope Scholar Award*, 1998; Johnson & Johnson *Focused Giving Award*, 1995; Camille Dreyfus *Teacher-Scholar Award*, 1994; Alfred P. Sloan *Research Fellowship*, 1994; Pfizer *Research Award in Synthetic Organic Chemistry*, 1993; American Cancer Society *Junior Faculty Research Award*, 1993; Eli Lilly *Grantee Award*, 1992; National Science Foundation *National Young Investigator Award*, 1992; Boston College *Distinguished Junior Faculty Award*, 1992; American Cancer Society *Postdoctoral Fellowship*, 1986; National Institutes of Health *National Research Service Award*, 1985; Yale University *R. B. Flint Graduate Fellowship Award*, 1984.

Research Interests

Hoveyda's research interests are centered on catalysis. This includes development of catalysts for key transformations, such as olefin metathesis, conjugate additions, allylic substitutions and additions of various allylic moieties to aldehydes, ketones, aldimines and ketimines. Equally central are detailed investigations to unravel the nuances of how the new catalysts function, and their application to concise and stereoselective total synthesis of complex molecules. More recent areas of research include development of catalytic multicomponent processes for precise framework editing of bioactive molecules, and design of new catalytic and biorthogonal click reactions. Hoveyda has published nearly 270 research and 40 review articles. He is co-founder of XiMo, AG (now a subsidiary of Verbio).

HUW M. L. DAVIES

Emory University
Department of Chemistry
Atlanta, Georgia



Title of Lecture: “Catalyst-Controlled Site-Selective and Enantioselective C-H Functionalization”

Phone: 404-727-6839

Email: hmdavie@emory.edu

Education:

1980 Ph.D., Organic Chemistry, University of East Anglia
1977 B.Sc., Chemistry, University College Cardiff

Research and Professional Experience

2008-present	Asa Griggs Candler Professor of Chemistry, Emory University
2007-2009	Founder and Chief Executive Officer, Dirhodium Technologies, Inc.
2000-2008	Larkin Professor of Organic Chemistry, University at Buffalo, the State University of New York
2003-2008	UB Distinguished Professor, University at Buffalo, the State University of New York
1995-2003	Professor of Chemistry, University at Buffalo, the State University of New York
1995-2008	Adjunct Professor, Department of Physiology and Pharmacology, Wake Forest University School of Medicine
1990-1995	Faculty Associate, Department of Physiology and Pharmacology, Wake Forest University School of Medicine
1993-1995	Professor of Chemistry, Wake Forest University
1988-1993	Associate Professor of Chemistry, Wake Forest University
1983-1988	Assistant Professor of Chemistry, Wake Forest University
1980-1983	Postdoctoral Research Associate, Princeton University

Honors and Awards

2019	ACS Herbert C. Brown Award for Creative Research in Synthetic Methods
2018	Paul N. Rylander Award
2017	Alexander von Humboldt Foundation Research Award
2015	Fellow of the National Academy of Inventors
2013	eEROS Reagent of the Year Award
2012	Fellow of the American Association for the Advancement of Science
2009	Fellow of the American Chemical Society
2007	Fellow of the Royal Society of Chemistry
2005	American Chemical Society Cope Scholar Award

Research Interests

Professor Davies' research emphasizes the development of new enantioselective synthetic methods and their applications in total synthesis and drug discovery. A major current theme of his program is catalytic asymmetric C–H functionalization by means of rhodium-carbene induced C–H insertion. He is currently the Director of the NSF Center for Chemical Innovation for Selective C-H Functionalization, which brings together 22 faculty members from 15 universities.

**PROFILE OF THE FOUNDERS
OF THE
HERBERT CHARLES AND SARAH BAYLEN BROWN FUNDS**

Herbert C. Brown was born in London on May 22, 1912, but was brought to the U.S. at age two and grew up in Chicago. He enrolled in Crane Junior College in 1933, where he met Sarah Baylen (b. January 10, 1916), his wife of more than 68 years. When Crane closed for lack of funds in June 1933, they continued their training in the home laboratory of one of their teachers, Nicholas D. Cheronis. When new colleges were opened in 1934, they attended Wright Junior College, where Sarah autographed his yearbook with the inscription, "To a future Nobel Laureate." They then entered the University of Chicago in 1935 as juniors. H. C. Brown completed two years of work in one year and graduated in 1936. A graduation gift from Sarah, Alfred Stock's Baker Lectures on "Hydrides of Boron and Silicon," was in part responsible for his choosing H.I. Schlesinger as his graduate research advisor at Chicago. His Ph.D. thesis (1938) dealt with the reduction of carbonyl compounds with diborane. Sarah and Herb were married "secretly" in 1937. They had a son, Charles in 1944, who became a chemist, B.S. Purdue (1964), Ph.D., University of California, Berkeley (1967). After a year of postdoctoral work with M. S. Kharasch, H. C. Brown became Assistant to Schlesinger (with rank of instructor) and codiscovered sodium borohydride. He became Assistant Professor at Wayne (now Wayne State) University in 1943, where he explored steric strains. He was promoted to Associate Professor in 1946. In 1947 he moved to Purdue University as Professor. He was promoted to R. B. Wetherill Professor in 1959 and R. B. Wetherill Research Professor in 1960. He received 14 Honorary Doctorates including one from the University of Chicago in 1968. Since his "retirement" in 1978, he had been R. B. Wetherill Professor Emeritus until he passed away on December 19, 2004. Sarah Brown passed away on May 29, 2005. He published seven books and 1,266 scientific publications. He won the majority of major awards in his field, including the Nobel Prize for Chemistry in 1979, the ACS Award for Creative Research in Organic Chemistry (1960), the National Medal of Science (1969), the Roger Adams Award (1971), the Priestley Medal (1981), the Perkin Medal (1982), the American Institute of Chemists Gold Medal Award (1985), the National Academy of Sciences Award in Chemical Sciences (1987), the Emperor's Decoration (Japan): Order of the Rising Sun, Gold and Silver Star (1989), Honorary Scholar of the University of Wales, Swansea (1994). In 1998 he was the inaugural winner of the ACS Herbert C. Brown Medal and Award for Creative Research in Synthetic Methods. He was named "One of the Top 75 Contributors to the Chemical Enterprise in the Past 75 Years," C&E News (1998).

LIST OF HERBERT C BROWN LECTURERS

1984

G. Stork
S. Danishefsky
P. A. Grieco

1985

J. I. Brauman
F. G. Bordwell
P. Kebarle

1986

C. H. Heathcock
A. I. Meyers
S. Masamune
K. B. Sharpless

1987

R. G. Bergman
T. Mukaiyama
B. M. Trost

1988

D. H. R. Barton
N. J. Leonard
K. Mislow

1989

A. G. Brook
I. Fleming
J. Michl

1990

K. Nakanishi
G. D. Prestwich
K. L. Rinehart

1991

P. B. Dervan
S. M. Hecht
P. A. Kollman
R. Noyori

1992

R. R. Holmes
R. C. Larock
G. A. Molander
L. M. Stock
Y. Yamamoto

1993

F. N. Diederich
D. A. Dougherty
J. M. McBride

1994

P. A. Bartlett
B. O. Fraser-Reid
A. B. Smith, III

1995

F. A. L. Anet
P. Lauterbur
D. E. Wemmer

1996

H. Alper
C. P. Casey
R. H. Crabtree
R. H. Grubbs
T. J. Marks
R. R. Schrock

1997

D. L. Boger
L. E. Overman
P. A. Wender
H. Yamamoto

1998

K. N. Houk
W. L. Jorgensen
P. von R. Schleyer

1999

A. Fürstner
Y. Kishi
S. V. Ley
M. Shibasaki

2000

R. Breslow
T. Kunitake
A. Suzuki
B. M. Trost

2001

S. J. Danishefsky
H. B. Kagan
R. A. Lerner
K. C. Nicolaou
D. Seebach

2002

M. S. Brookhart
R. H. Grubbs
P. Knochel
G. M. Whitesides

2003

C. H. Heathcock
M. T. Reetz
V. Snieckus
P. Stang

2004

P. Kochiński
I. Paterson
K. Tamao
P. A. Wender

2005

S. L. Buchwald
D. P. Curran
S. Hanessian
E. Vedejs

2006

J.-E. Bäckvall
L. L. Kiessling
J. Mulzer
D. N. Reinhoudt
G. Stork

2007

B. L. Feringa
T. Hayashi
H. Schwarz
J. F. Stoddart
C. H. Wong

2008

E. M. Carreira
A. B. Holmes
E. Nakamura
A. Pfaltz

2009

S. Blechert
G. C. Fu
E. N. Jacobsen
D. W. C. MacMillan

2010

S. Denmark
J. Ellman
A. H. Hoveyda

2011

M. Fujita
C. Khosla
B. M. Stoltz
C. T. Walsh

2012

V. Aggarwal
J. Cossy
E. Negishi
A. Suzuki
P. Wipf

2013

J. Clardy
J. Ellman
T. Fukuyama
B. Imperiali
H. Waldmann

2014

J. Hartwig
S. Martin
S. Stupp
T. Swager
D. Tirrell
R. Zuckerman

2015

P. Baran
P. Chen
P. Knochel
J. Stubbe

2016

A. Charette
G. A. Molander
J. A. Porco, Jr.
K. Müllen

2017

J. Bode
S. H. Gellman
K. Kataoka
S. J. Miller

2018

Z. Bao
M. J. Gaunt
B. H. Lipshutz
D. R. Walt
J.-Q. Yu

2019

G. C. Fu
B. List
S. E. Reisman
P. H. Seeberger

Organizers for the 37th H. C. Brown Lectures

Chris Uyeda (Chair)

Jianguo Mei (Vice Chair)

Session Chairs

Ryan Altman

Bram Axelrod

Mingji Dai

Chris Uyeda

Symposium Secretary

Donna Bertram

38th H. C. Brown Lectures: Friday, April 14, 2023