

**Herbert C. Brown**

*Lectures in  
Organic  
Chemistry*

**2023**

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



*Herbert Charles and Sarah Baylen Brown*

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

**Friday, April 14, 2023**

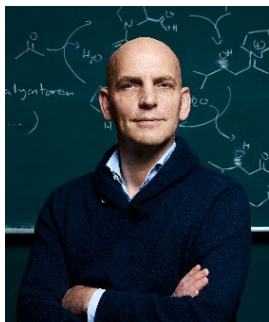
**STEWART CENTER (STEW), ROOM 218**

**SCHEDULE OF EVENTS**

8:55 – 9:00 a.m. (EDT)	<i>Opening Remarks</i> <b>Jean Chmielewski</b> , Interim Dean College of Science, Purdue University
9:00 – 10:00 a.m.	<b>Benjamin List</b> , Max-Planck-Institut für Kohlenforschung Recipient of the 2022 ACS Herbert C. Brown Award for Creative Research in Synthetic Methods <i>“Toward Universal Catalysts for Selective Synthesis”</i> (Chair: Severin Schneebeli)
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.	<b>Margaret Brimble</b> , The University of Auckland <i>“Natural Product Synthesis: A Crucible for New Method Development and Drug Discovery”</i> (Chair: Jianguo Mei)
12:00 – 12:15 p.m.	Discussion
12:15 – 1:30 p.m.	<b>LUNCH</b> (STEW 302/306)
1:30 – 2:30 p.m.	<b>Véronique Gouverneur</b> , University of Oxford <i>“Fluorination with Alkali Metal Fluoride”</i> (Chair: P.V. Ramachandran)
2:30 – 2:45 p.m.	Discussion
2:45 – 3:00 p.m.	<b>Kristen Berger</b> , Purdue University (H.C. Brown Graduate Student Research Award Winner) <i>“Catalytic Asymmetric Cyclopropanations with Non-Stabilized Carbenes”</i> (Advisor: Chris Uyeda)
3:00 – 3:15 p.m.	<b>Dake Mao</b> , Purdue University (H.C. Brown Graduate Student Research Award Winner) <i>“Build Curve DNA Nanostructure: A Case Study of DNA Homopolymers”</i> (Advisor: Chengde Mao)
3:15 – 4:00 p.m.	Coffee Break / Poster Session (STEW 202/206)
4:00 – 5:00 p.m.	<b>Mark Lautens</b> , University of Toronto Recipient of the 2021 ACS Herbert C. Brown Award for Creative Research in Synthetic Methods <i>“Flipping the Switch: Reversible Reactions in Synthesis”</i> (Chair: Mark Lipton)
5:00 – 5:15 p.m.	Discussion
5:15 – 6:30 p.m.	<b>Reception and Announcement of Poster Award Winners</b> (STEW 302)
7:00 p.m.	<b>VIP Dinner at McGraw’s (by Invitation)</b> (2707 S. River Rd., West Lafayette, IN 47906)

# BENJAMIN LIST

**Max-Planck-Institut für Kohlenforschung**  
**Department of Homogeneous Catalysis**  
**Mülheim, Germany**



**Title of Lecture:** “Toward Universal Catalysts for Selective Synthesis”

**Phone:** +49 208 306 2410

**Email:** list@kofo.mpg.de

## **Education:**

- 1997 Ph.D., J. W. Goethe University Frankfurt  
*summa cum laude* (J. Mulzer)  
1993 Diplom (with distinction), FU Berlin

## **Research and Professional Experience**

- 2020-present Specially Appointed Professor at Hokkaido University, Japan  
2012-2014 Managing Director of the Max-Planck-Institut für Kohlenforschung  
2005-present Scientific Member of the Max-Planck Society, Germany  
2005-present Director at the Max-Planck-Institut für Kohlenforschung,  
Department of Homogeneous Catalysis  
2004-present Honorary Professor at the University of Cologne, Germany  
2003-2005 Group Leader, Max-Planck-Institut für Kohlenforschung  
1999-2003 Assistant Professor, The Scripps Research Institute  
1997-1998 Postdoc, The Scripps Research Institute (R. Lerner)

## **Selected Awards and Honors**

- 2022 Honorary Fellow of the Chinese Chemical Society  
2022 Herbert C. Brown Award for Creative Research in Synthetic Methods, USA  
2021 Nobel Prize in Chemistry, Royal Swedish Academy of Sciences  
2018 Member of the German National Academy of Science Leopoldina  
2016 Gottfried Wilhelm Leibniz-Prize  
2015-present Editor in Chief of Synlett (Thieme)  
2014 Arthur C. Cope Scholar Award, USA  
2013 Mukaiyama Award, Japan  
2013 Horst-Pracejus-Prize, Germany  
2012-2020 Panel Member European Research Council  
2012 Otto-Bayer-Prize, Germany  
2007 AstraZeneca Research Award in Organic Chemistry, UK  
2007 Fonds der Chemischen Industrie Award, Germany  
2004 Dozentenstipendium of the Fonds der Chemischen Industrie, Germany  
2000 Synthesis-Synlett Journal Award 2000, Germany  
1997-1998 Feodor-Lynen Fellowship of the Alexander von Humboldt Foundation

## **Research Interests**

Chemical synthesis and catalysis

## MARGARET BRIMBLE

School of Chemical Sciences and School of Biological Sciences  
The University of Auckland  
Auckland, New Zealand



**Title of Lecture:** “Natural Product Synthesis: A Crucible for New Method Development and Drug Discovery”

**Phone:** +64 9 923 8259

**Email:** m.brimble@auckland.ac.nz

**Education:**

1983-85 PhD, Chemistry, The University of Southampton

1982-83 MSc, Chemistry, The University of Auckland

1979-81 BSc, Chemistry, The University of Auckland

**Research and Professional Experience**

2012-present Distinguished Professor, The University of Auckland  
2004-present Deputy Director, Maurice Wilkins Centre for Molecular Biodiscovery  
2002-present Director of Medicinal Chemistry, The University of Auckland  
1999-present Professor and Chair of Organic Chemistry, The University of Auckland  
1995-97 Senior Lecturer/Reader in Organic Chemistry, The University of Sydney  
1993-94 Senior Lecturer in Chemistry, The University of Auckland  
1986-92 Lecturer in Chemistry, Massey University, Palmerston North

**Selected Awards and Honors**

2023 American Chemical Society Ernest Guenther Award for Natural Products Chemistry  
2022 Royal Society of Chemistry Pedler Award for Innovation in Organic Chemistry  
2019 Queen’s Honour – Dame Companion of the New Zealand Order of Merit (DNZM)  
Inducted into American Chemical Society Medicinal Chemistry Hall of Fame  
Supreme Award Kiwinet Research Commercialisation Awards  
Research Entrepreneur Award Kiwinet Research Commercialisation Awards  
2018 Elected Fellow of The Royal Society (FRS) – *first female New Zealander*  
Royal Soc. Chem. George & Christine Sosnovsky Award in Cancer Therapy  
2017 IUPAC Award - Outstanding Service in Advancement of Chemistry Worldwide  
2016 NZ Assoc. of Scientists Marsden Medal (Lifetime Achievement in Science)  
2015 IUPAC Distinguished Women in Chemistry/Chemical Engineering Award  
2012 Queen’s Honour - Companion of the New Zealand Order of Merit (CNZM)  
RSNZ Rutherford Medal (top science medal); RSNZ Hector Medal (Chem.Sciences);  
RSNZ MacDiarmid Medal (Human Benefit)  
2011 Royal Australian Chem. Inst. Adrien Albert Award (Medicinal Chemistry)  
2010 Royal Society of Chemistry UK Natural Products Chemistry Award  
2008 World Class NZ Award (Research, Science, Technology & Academia)  
2007 L'ORÉAL-UNESCO Women in Science Laureate Asia/Pacific  
2005 NZIC HortResearch Prize for Excellence in the Chemical Sciences  
2004 Queen’s Honour – MNZM; RSNZ James Cook Research Fellowship  
2003 Novartis Chemistry Prize; Royal Society Rosalind Franklin Lectureship  
2001 Federation of Asian Chemical Societies Distinguished Chemist Award

**Research Interests**

Margaret’s research focusses on the synthesis of novel bioactive natural products/antimicrobial peptides, antibody-drug conjugates, and lipopeptides for cancer vaccines and new biomaterials.



# VÉRONIQUE GOUVERNEUR

Department of Chemistry  
University of Oxford  
Oxford, UK



**Title of Lecture:** “Fluorination with Alkali Metal Fluoride”

**Phone:** +44 (1865) 275 644

**Email:** veronique.gouverneur@chem.ox.ac.uk

**Education:**

1985-91 Ph.D., Université Catholique de Louvain (Belgium)  
Advisor: Prof. L. Ghosez

1981-85 B.Sc & M.Sc in Chemistry, Université Catholique de Louvain (Belgium)

**Research and Professional Experience**

2022-present Waynflete Professor of Chemistry, Oxford University (UK)  
2008-2022 Professor in Chemistry, Oxford University (UK)  
2006-2008 Reader in Organic Chemistry, Oxford University (UK)  
1998-2006 University Lecturer in Organic Chemistry, Oxford University (UK)  
1998-present Tutorial Fellowship, Merton College (UK)  
1994-1998 Maître de Conférences, Université Louis Pasteur (France)  
1992-1994 Postdoctoral Research Fellow, The Scripps Research Institute (USA),  
Advisor: Prof. R. A. Lerner

**Selected Awards and Honors**

2022, Arthur C. Cope Award, American Chemical Society (USA)  
2022, EuChemS Female Organic Chemist of the Year (Europe)  
2021, Henri Moissan Prize, La Fondation de la Maison de Chimie (France)  
2019, Prelog Medal, ETH Zurich (Switzerland)  
2019, Elected Fellow of the Royal Society (UK)  
2019, RSC Organic Stereochemistry Award (UK)  
2017, Elected Member of the European Academy of Sciences (EURASC)  
2016, Peter Wall Institute for Advanced Studies, International Visiting Research Scholar, UBC (Canada)  
2016, RSC Tilden Prize (UK)  
2016, Tetrahedron Chair - BOSS XV (Belgium)  
2015, Visiting Professor at the Nagoya Institute of Technology (Japan)  
2015, ACS Award for Creative Work in Fluorine Chemistry (USA)  
2013-2018, Royal Society Wolfson Research Merit Award (UK)  
2012-2014, Chaire Internationale de Recherche Blaise Pascal ENS/CEA, Saclay (France)  
2012, EurJOC Lecture Award (Germany)  
2011, ACS Distinguished Woman in Chemistry Award (USA)  
2011, Liebig Lectureship Award of the Organic Division of the German Chemical Society (Germany)  
2010, Elected Fellow Royal Society of Chemistry (UK)  
2010, The Thieme Chemistry Journal Award (Germany)  
2008, The RSC Bader Award (UK)  
2005, The AstraZeneca Research Award in Organic Chemistry (UK)  
2000, The Nuffield Foundation Award for Newly Appointed University Lecturer (UK)  
1992, Prix de l' Académie Royale des Sciences and Prix Bruylants (Belgium)

**Research Interests**

The main research theme in the Gouverneur laboratory is fluorine chemistry.

## MARK LAUTENS

Department of Chemistry  
University of Toronto  
Toronto, Ontario, Canada



**Title of Lecture:** “Flipping the Switch: Reversible Reactions in Synthesis”

**Phone:** 416-978-6083

**Email:** mark.lautens@utoronto.ca

**Education:**

1985 Ph.D., University of Wisconsin-Madison

1981 B.Sc. (Distinction), University of Guelph

**Research and Professional Experience**

2013-2023 J. Bryan Jones Distinguished Professor, University of Toronto  
2012-present University Professor, University of Toronto  
2003-2013 NSERC/Merck Frosst Industrial Research Chair  
1998-present AstraZeneca Professor of Organic Synthesis (Endowed Chair)  
1995-1998 Professor, University of Toronto  
1992-1995 Associate Professor, University of Toronto  
1987-1992 Assistant Professor, University of Toronto  
1985-1987 NSERC Postdoctoral Fellow, Harvard University

**Selected Awards and Honors**

2021 H.C. Brown Award, American Chemical Society  
2020 Alumni of Honour, University of Guelph AA  
2020 E.W.R Steacie Award, Canadian Society for Chemistry  
2017 Henry Marshall Tory Award, Royal Society of Canada  
2017 J.J. Berry Smith Doctoral Supervision Award, SGS University of Toronto  
2016 Doctor of Science, honoris causa, University of Guelph  
2016 University of Toronto Alumni Faculty Award, University of Toronto  
2014 Officer of the Order of Canada, Governor General  
2013 CIC Medal, Chemical Institute of Canada  
2011 Pedler Award, Royal Society of Chemistry  
2009-2014 Senior Scientist Award, Alexander von Humboldt Foundation (Germany)  
2006 Arthur C. Cope Scholar Award, American Chemical Society  
2006 Alfred Bader Award, Canadian Society for Chemistry  
2004 R. U. Lemieux Award, Canadian Society for Chemistry  
2001 Fellow of the Royal Society of Canada, Royal Society of Canada

**Research Interests**

Catalysis, synthetic methodology, asymmetric catalysis, multi catalytic reactions, and synthetic efficiency

**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. Kochiowski  
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

## LIST OF HERBERT C BROWN LECTURERS

### 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. S. Baran  
P. Chen  
P. Knochel  
J. Stubbe

### 2016

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

### 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

### 2022

H. M. L. Davies  
A. H. Hoveyda  
D. Ma  
R. Sarpong

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**Organizers for the 38th H. C. Brown Lectures**

Jianguo Mei (Chair)  
Severin Schneebei (Vice Chair)

**Session Chairs**

Mark Lipton  
Jianguo Mei  
P.V. Ramachandran  
Severin Schneebei

**Symposium Secretary**

Donna Bertram

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**39th H. C. Brown Lectures: Friday, April 19, 2024**