Baker Lectures from 1926 to Present

* Denotes Nobel Prize Laureates
Underlined title denotes books published in the Baker Lecture Series

Spring 2018

New Frontiers in Organic Chemistry

Phil Baran, The Scripps Research Institute
- Translational Chemistry

Jonathan Bennett, Merck Research Laboratories
- Cyclic Dinucleotide STING Agonists for Immuno-Oncology – Unlocking Therapeutic Potential through Chemistry

Steven Leffler Buchwald, Massachusetts Institute of Technology
- Bond-Forming Processes of Molecules Large and Small

Brett Fors, Cornell University
- Stimuli-Controlled Cationic Polymerization Reactions

Marisa Kozlowski, University of Pennsylvania
- Oxygen Driven Fragment Coupling by Activation of C-H, N-H, and O-H Bonds

Song Lin, Cornell University
- Using Electricity to Amp up Organic Synthesis

Dean Toste, University of California, Berkeley
- Organic Chemistry Inspired by the Organometallic Chemistry of Gold

Spring 2017

Quo Vadis: The Boundless Trajectories of Chemical Biology

Jon Clardy, Harvard Medical School
- Molecular View of Multilateral Symbioses

Laura Kiessling, University of Wisconsin/MIT
- Mining Microbial Carbohydrates for Health and Disease

Christopher Chang, University of California, Berkeley
- Transition Metal Signaling in the Brain and Beyond
Alanna Schepartz, Yale University
- Watching Organelles for (Almost) Forever at Super-Resolution

David Tirrell, California Institute of Technology
- What are Non-Canonical Amino Acids Good for?

Spring 2016
- Quantum Mechanics and Materials Design

Kieron Burke, University of California, Irvine
- Successes and Failures of Density Functional Theory for Molecules and Materials

Eran Rabani, University of California, Berkeley
- Multiexciton Generation at the Nanoscale

Victor Batista, Yale University
- Studies of Natural and Artificial Photosynthesis

Nandini Ananth, Cornell University

Spring 2015
- The Places You Will Go - How Chemistry has Impacted My Life – Cornell and Beyond

Karen Trentelman, The Getty Conservation Institute
- Art as Evidence: The scientific investigation of works of art

Frank Douglas, the VAX Genetics Vaccine Co.
- Introducing Chemical Biology for Drug Innovation in Industry

Kirk Yeager, FBI Chief Explosives Scientist
- Poetic Justice through Hard Science

Peter Kim, Stanford University
- Improving Human Health Through Translational Research

Spring 2014
- Deciphering and harnessing nature’s bioinorganic playbook for small molecule activation and catalysis

J. Martin Bollinger Jr, Penn State University
- Demystifying the chemical magic of non-heme-iron enzymes in natural product biosynthesis

Andy Borovik, UC Irvine
- Synthetic chemistry as a window into metallobiochemistry
Amy C. Rosenzweig, Northwestern University
- Metalloenzymes and biological methane oxidation

William Tolman, University of Minnesota
- Copper oxygen intermediates relevant to oxidation catalysis

Spring 2013  Catalysis and synthesis at the frontier

John Hartwig, University of California, Berkeley
- Catalytic functionalization of arenes and alkanes

Michael Krische, University of Texas at Austin
- Hydrogenation for C-C bond formation

Scott Miller, Yale University
- Natural products, synthetic catalysts, unnatural products

Matthew Truppo, Merck
- A continuous biocatalytic manufacturing route for Januvia

Spring 2012  Water, an active player in bulk and interfacial chemistry

Philip Ball, Freelance Writer, England
- Why water is a biomolecule

Poul Petersen, Cornell University
- The behavior of water at interfaces

Mark Johnson, Yale University
- Molecular perspectives of water from size-selected clusters

Thomas Elsaesser, Max-Born-Institute, Berlin
- Ultrafast vibrational and structural dynamics of water and hydrated biomolecules

Phillip Geissler, University of California, Berkeley
- Why would a small ion adsorb to the air-water interface?

Veronica Vaida, University of Colorado, Boulder
- Water – air interfaces in the contemporary and ancient earth’s atmosphere

Abraham Stroock, Cornell University
- Lessons from plants about water at negative pressures
Franz Geiger, Northwestern University

- Exponential Sensitivities of Environmental Contaminant Interactions with Water/Mineral Interfaces

Spring 2011  The Future of Graphene Chemistry

Klaus Müllen, MPI for Polymer Research, Mainz, Germany

- The Polymer Chemistry for Carbon Materials and Graphenes

William Dichtel, Cornell University

- Graphene as a Platform for Molecular Assembly

Byung-Hee Hong, Sungkyunkwan University, Suwon, Korea

- Non-Covalent Surface Chemistry of Graphene

Jim Tour, Rice University

- Graphene Synthesis and Applications

Jiwoong Park, Cornell University

- New Eyes for Carbon Nanostructures

Mark Hersam, Northwestern University

- Chemical Functionalization of Graphene

Philip Kim, Columbia University

- Graphene at Extreme Charge Densities

Spring 2010  Frontiers in Protein Chemistry: From Structure and Reaction to Cellular Function

Jin Zhang, Johns Hopkins University School of Medicine

- Spatiotemporal Regulation of Signaling Enzymes in Living Cells

Douglas Rees, Howard Hughes Medical Institute and California Institute of Technology

- Structural Basis of Biological Nitrogen Fixation

Hening Lin, Cornell University

- The Enzymatic Activity of Sirtuins: Beyond NAD-dependent Deacetylation

Lewis Cantley, Harvard Medical School

- Cancer Cell Metabolism
Christopher Walsh, Harvard Medical School

- Thiazolyl Peptide Antibiotics: A Bevy of Posttranslational Modifications

Amy Davidson, Purdue University

- Structure and Function of an ATP Binding Cassette Transporter: The Maltose Transporter from E. coli

Jack Szostak, Harvard Medical School and Howard Hughes Medical Institute

- Towards the Design and Synthesis of an Artificial Cell

Spring 2008

Christopher Cummins, Massachusetts Institute of Technology

- Various topics to be discussed by the speakers

Spring 2007

Gerhard Ertl*, Fritz Haber Institute

- Reactions at Solid Surfaces

George Whitesides, Harvard University

- Electron Transfer Across Self-Assembled Monolayers. The Development of a Junction Based on Sams Sandwiched Between Two Metal Electrodes One Gold or Silver and the Other Liquid Mercury-and the Use of these Systems to Study Mechanisms on Electron Transfer in Organic Materials.

Spring 2006

Robert Grubbs*, California Institute of Technology

- Synthesis of Large and Small Molecules using Transition Metal Catalysts

Fall 2004

Joanne Stubbe, Massachusetts Institute of Technology

- Radicals with Controlled Lifestyles

Fall 2003, Two Lecture Series

Harry B. Gray, California Institute of Technology

- The Currents of Life Electron Tunneling through Iron and Copper Proteins
- Metalloprotein Folding Landscapes
Fall 2002
Jean-Michel Savéant, University of Paris, Denis District

- Elements of Molecular and Biomolecular Electrochemistry. An Approach to Electron Transfer Chemistry

Fall 2001
Jean Fréchet, University of California at Berkeley

- Design and Applications of Functional Macromolecules

Fall 2000
Stephen J. Lippard, Massachusetts Institute of Technology

- Principles of Bioinorganic Chemistry

Fall 1999
W. Carl Lineberger, University of Colorado

- Gas Phase Chemistry of Radicals, Anions, and Molecular Clusters

Fall 1998
John Brauman, Stanford University

- Gas-Phase Ionic Chemistry

Fall 1997
Michael Fisher, University of Maryland

- Understanding Criticality in Electrolytes and other Fluids

Spring 1997
Dieter Seebach, Eidgenössische Technische Hochschule, Zürich

Fall 1995
Graham Fleming, University of Chicago

- Ultrafast Spectroscopy

Fall 1994
Gerhard Wegner, Max Planck Institute für Polymerforschung

- Supramolecular Architectures of Polymers – Design and Properties
Fall 1993
John E. Bercaw, California Institute of Technology
  - Organotransition Metal Chemistry: Exploratory Synthesis and Mechanism

Fall 1992
Charles Cantor, Boston University
  - DNA Analysis from Genomes to Sequences Genomics

Fall 1991
R. A. Marcus*, California Institute of Technology
  - Theories of Electron Transfer and Unimolecular Processes and Comparison with Experiments

Fall 1990
R. Noyori*, Nagoya University
  - High-Performance Organometallic Reagents Asymmetric Catalysis

Spring 1990
John S. Waugh, Massachusetts Institute of Technology
  - Introduction to NMR

Spring 1988
Richard H. Holm, Harvard University
  - Inorganic Chemistry Related to Biological Processes

Fall 1988
Jeremy r. Knowles, Harvard University
  - Enzymes: Stereochemistry and Mechanisms

Spring 1987
Allen J. Bard, University of Texas
  - Integrated Chemical Systems; Modified Electrodes and Photoelectrochemical Systems

Fall 1987
Linus C. Pauling*, Linus Pauling Institute
  - The Nature of the Chemical Bond…After Fifty Years
Spring 1986
Stuart A. Rice, University of Chicago
  • *Intramolecular Dynamics*

Fall 1984
Alan R. Battersby, Cambridge University
  • *Discovering the Chemistry of Nature’s Biosynthetic Pathways*

Spring 1983
John M. Thomas, Cambridge University
  • *Technique and Adventure in Solid State Chemistry*

Fall 1983
Kurt Wüthrich*, Swiss Federal Institute of Technology, Zürich
  • *NMR of Proteins and Nucleic Acids*

Fall 1981
Harry B. Gray, California Institute of Technology
  • *Photochemistry of Metal Complexes*

Fall 1980
Richard N. Zare, Stanford University
  • *Angular Momentum Quantum Mechanics*

Fall 1979
Charles A. Reilley, University of North Carolina
  • *Diverse Aspects of Analytical Chemistry*

Fall 1978
Jean-Marie Lehn*, Institute de Chemie, Universite Louis Pasteur de Strasbourg
  • *Cryptates: The Chemistry of Macropolycyclic and the Design of Molecular Receptors, Carriers and Catalysts. An Approach to the Chemistry of the Intermolecular Bond Supramolecular Chemistry: Concepts and Perspectives*
Fall 1977
Gabor A. Somorjai, University of California at Berkeley

- *Chemistry in Two Dimensions: Surfaces*

Fall 1976
Jack David Dunitz, Swiss Federal Institute of Technology, Zürich

- *X-ray Analysis and the Structure of Organic Molecules*

Fall 1975
Duilio Arigoni, Swiss Federal Institute of Technology, Zürich

- *Bioorganic Stereochemistry*

Fall 1974
Jack Lewis, Cambridge University

- *Organometallic Compounds – Reaction of Organic Molecules Coordinated to Metals*

Fall 1973
Pierre Gilles de Gennes*, University of Paris

- *Liquid Crystals*

Spring 1972
Michael Szware, State College of Forestry, Syracuse University

- *Electron Transfer Processes in Organic Chemistry*

Fall 1972
Edgar Heilbronner, University of Basel

- *Photoelectron Spectroscopy and the Electronic Structure of Molecules*

Spring 1971

- *Dynamic Stereochemistry*

Fall 1970
Samuel Issac Weissman, Washington University, St. Louis, MO

- *Spectroscopy and Chemical Kinetics*
Spring 1969
William N. Lipscomb, Jr*, Harvard University
  • *The Relation Between Atomic Structure and Function of Proteins*

Fall 1969
Herbert Charles Brown*, Purdue University
  • *Boranes in Organic Chemistry*

Spring 1968
Ephraim Katchalski, Weizmann Institute of Science
  • *Synthetic Polymers of Biological Interest*

Fall 1968
Gerhard Herzberg*, National Research Council
  • *The Spectra and Structure of Simple Free Radicals*

Fall 1967
Vladimir Prelog*, Swiss Federal Institute of Technology, Zürich
  • *Chemical Topology*

Spring 1965
Henry Taube*, Stanford University
  • *Oxidation-Reduction Reactions in Solution and Related Topics*

Fall 1965
George Simms Hammond, California Institute of Technology
  • *Physical and Chemical Mechanisms in Photochemistry*

Spring 1964
Hugh C. Longuet-Higgins, Cambridge University
  • *Current Developments in Valence Theory*

Fall 1964
Frank H. Westheimer, Harvard University
  • *Mechanisms of Biochemical Reactions*
Spring 1963
Edward A. Guggenheim, Reading University
  • Applications of Statistical Mechanisms to Some Problems in Physical Chemistry

Fall 1962
Rolf Huisgen, University of Munich
  • Organic Chemistry: Cycloadditions

Spring 1961
Peter Joseph William Debye*, Cornell University
  • Molecular Forces

Fall 1961
Federick S. Dainton, University of Leeds
  • Radiochemistry and Some Topics in Reaction Kinetics

Manfred Eigen*, Max-Planck Inst. of Physical Chemistry
  • Physical Chemistry

Spring 1960
Robert Sanderson Mulliken*, University of University of Chicago
  • The Interaction of Electron Donors and Acceptors

F. A. Kroger, Philips Research Laboratories, The Netherlands
  • The Chemistry of Imperfect Solids

Spring 1959
Charles Alfred Coulson, Mathematical Institute, Oxford
  • The Size and Shape of Molecules

Fall 1959
Rudolf Criegee, Karlsruhe Institute of Technology
  • Organic Oxidation Mechanisms
Spring 1958
Ronald Percy Bell, Balliol College, Oxford

- *The Proton in Chemistry*

Fall 1958
Melvin Calvin*, University of California, Berkeley

- *Recent Advances in the Chemistry of Photosynthesis*

Spring 1957
Saul Winstein, University of California, Los Angeles

Fall 1956
Harry Julius Emeleus, Cambridge University

- *The Halogens and Their Components*

Fall 1955
Paul Hugh Emmett, Johns Hopkins University

- *Current Ideas on Contact Catalysts*

Spring 1954

- *The Colloid Chemistry of Silica and Silicates*

Fall 1954
Frederick Seitz, University of Illinois

- *Imperfections in Crystalline Materials*

Spring 1953
Karl August Folkers, Merck & Company

- *Current Research in Vitamin Chemistry*

Fall 1953
Edgar W. Richard Steacie, National Research Council Ottawa, Canada

- *Photochemical and Free Radical Reactions*
Fall 1952
John Monteath Robertson, University of Glasgow
- *Organic Crystals and Molecules*

Spring 1950
Nevil Vincent Sidgwick, Oxford University
H. I. Schlesinger, University of Chicago
- *Hydrides of Boron*

Fall 1950
Christopher K. Ingold, University of College, London
- *Structures and Mechanism in Organic Chemistry*

Spring 1949
Paul Doughty Bartlett, Harvard University

Spring 1948
Paul John Flory*, Goodyear Tire & Rubber Co.
- *Principles of Polymer Chemistry*

NO LECTURES WERE HELD DURING THE WORLD WAR II PERIOD (1940-47)

Fall 1939
Peter Joseph William Debye*, Kaiser Wilhelm Institute
- *Determination of Molecular Structure by Method of Interferences*

Fall 1938
Harold Clayton Urey*, Columbia University
George Bogdan Kistiakowsky, Harvard University
- *Ultra High Pressure*

Percy William Bridgman*, Harvard University
- *The Properties of Matter Under Pressure*
Spring 1937

William Hobson Mills, Cambridge University
- Stereochemistry

Fall 1937

Linus Carl Pauling*, California Institute of Technology
- The Nature of the Chemical Bond and the Structure of Molecules and Crystals

Fall 1936

William Draper Harkins, University of Chicago
- The Chemistry and Physics of Surfaces

Spring 1935

Farrington Daniels, University of Wisconsin at Madison
- Chemical Kinetics

Fall 1935

Ross Aiken Gortner, University of Minnesota
- Selected Topics in Colloid Chemistry with Especial Reference to Biological Problems

Spring 1934

William Lawrence Bragg*, Manchester University
- Atomic Structure of Minerals

Summer 1934

Gilbert Newton Lewis, University of California at Berkeley
- Heavy Hydrogen

Fall 1934

Johan Rudolf Katz, The Netherlands

Spring 1933

Otto Hahn*, University of Berlin
- Applied Radiochemistry
Spring 1932
Alfred E. Stock, Kaiser Wilhelm Institute
  • *Hydrides of Boron and Silicon*

Spring 1931
Nevil Vincent Sidgwick, Oxford University
  • *Some Physical Properties of the Covalent Link in Chemistry*

Fall 1931
Cecil Henry Desch, Sheffield University
  • *The Chemistry of Solids*

Spring 1930
Kasimir Fajans, University of Munich
  • *Radioelements and Isotopes: Chemical Forces and Optical Properties of Substances*

Fall 1930
Georg van Hevesy*, University of Freiburg
  • *Chemical Analysis by X-rays and its Applications*

Spring 1929
Frans Mauritz Jaegar, University of Groningen
  • *Spatial Arrangement of Atomic Systems and Optical Activity: Methods, Results, and Problems of Precise Measurements at High Temperatures: The Constitution and Structure of Ultramarines*

Fall 1929
George Paget Thomson*, University of Aberdeen
  • *The Wave Mechanics of Free Electrons*

Spring 1928
George Barger, University of Edinburgh
  • *Some Applications of Organic Chemistry to Biology and Medicine*

Fall 1928
Hans Pringsheim, University of Berlin
  • *The Chemistry of the Monosaccharides and of the Polysaccharides*
Spring 1927

Archibald Vivian Hill*, University College, London

- *Muscular Movement on Man: The Factors Governing Speed and Recovery from Fatigue*

Fall 1927

Paul Walden, University of Rostock, Germany

- *Salts, Acids, and Bases: Electrolytes: Stereochemistry*

Spring 1926

Ernst Julius Cohen, University of Utrecht

- *Physico-Chemical Metamorphosis and Some Problems in Piezochemistry*

Fall 1926

Friedrich Adolf Paneth, University of Berlin

- *Radio Elements as Indicators and other Topics in Inorganic Chemistry*