Baker Lectures from 1926 to Present

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

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 Asymetric 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 Moleculars*

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

Earl Leonard Muetterties, E. I. du Pont de Nemours and Co.

- *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

Ralph Kingsley Iler, E. I. du Pont de Nemours & Co.

- *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 Radial 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 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 Interference*s

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 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*