

# New Members: Class of 2004

## Class I: Mathematical and Physical Sciences

### Section 1: Mathematics

#### David Aldous

*University of California,  
Berkeley, CA*

Professor of Statistics. Leading figure in discrete probability, the study of random processes on finite structures. Made contributions in several areas of probability theory: rates of convergence to equilibrium in finite-state Markov chains, Poisson approximations in diverse contexts, probabilistic analysis of algorithms, and the analysis of coalescent processes.

#### Leonard Gross

*Cornell University, Ithaca, NY*

Professor of Mathematics. Contributed to the interface between mathematics and physics. Devised the rigorous framework for white noise analysis that is used throughout probability and its applications. Created and explored logarithmic Sobolev inequalities and their relations to hypercontractivity, tools now applied far from their origins in constructive field theories.

#### Anatole Katok

*Pennsylvania State University,  
University Park, PA*

Raymond N. Shibley Professor of Mathematics. Leading researcher in ergodic theory and theory of dynamical systems. Shaped the subject through work on dynamics of billiards, construction of ergodic transformation, and geodesic flows. Provided the basis for this area of research with work on the rigidity of commuting flow actions.

#### Fang-Hua Lin

*New York University, Courant  
Institute of Mathematical Sciences,  
New York, NY*

Silver Professor of Mathematics. Solved many problems originating in physics or geometry and leading to nonlinear elliptic partial differential equations. Played

a role in establishing a mathematical theory for liquid crystals, for both the static and dynamic cases. Made contributions to the study of topological defects. Established the dynamical laws for the Ginzburg-Landau vortices in superconductivity and the topological solitons in superfluids.

#### Yuri I. Manin

*Northwestern University, Evanston,  
IL; Max Planck Institute for Mathe-  
matics, Bonn, Germany; Steklov  
Mathematical Institute, Moscow,  
Russia*

Trustee Chair and Professor of Mathematics; Scientific Member; Professor. Solved many problems in number theory and algebraic geometry. Developed new techniques in the theory of differential equations and mathematical physics. Recent research focuses on quantum cohomology and noncommutative geometry.

#### Donald Anthony Martin

*University of California,  
Los Angeles, CA*

Professor of Mathematics and Philosophy. Leader in the development of axiomatic set theory. Derived, with others, a definability theory for the continuum from game-theoretic determinacy hypotheses. Wrote proofs for standard set theory of Borel determinacy and projective determinacy from large cardinals. Motivated and contributed to work on the associated philosophical problems.

#### Gang Tian

*Massachusetts Institute of  
Technology, Cambridge, MA*

Simons Professor of Mathematics. Authority in the field of differential geometry and complex analysis, with contributions to Kähler-Einstein metrics, geometric equations, and quantum cohomology. Recipient of the Alan Waterman Award (National Science Foundation) and the Veblen Prize (American Mathematical Society).

#### Nolan R. Wallach

*University of California,  
San Diego, CA*

Professor of Mathematics. Contributed to the harmonic analy-

sis of semi-simple groups and the spectral theory and cohomology of their quotients. Work encompasses Lie theory, Riemannian geometry, differential equations, automorphic forms, algebraic geometry, mathematical physics, and quantum computing. Authored monographs on the cohomology of discrete groups, representation theory, and invariant theory.

#### Lai-Sang Young

*New York University, Courant  
Institute of Mathematical Sciences,  
New York, NY*

Professor of Mathematics. Expert in the theory of dynamical systems, particularly their ergodic behavior. Explores the geometric and statistical theories of chaotic dynamical systems, including measurements of dynamical complexity, and the cumulative effects of small random perturbations on the long-term behavior of dynamical systems.

#### Yves Colin de Verdiere (FHM)

*Université Joseph Fourier,  
Grenoble, France*

Professor of Mathematics. Advanced spectral theory, semiclassical analysis, and the combinatorics of graphs. Worked on the spectral theory of Laplace operators, providing the first rigorous proof that the length spectrum of a Riemannian manifold is a spectral invariant of the Laplace operator. Proved fundamental theorems in the spectral theory of graphs.

### Section 2: Physics

#### Guenter Ahlers

*University of California,  
Santa Barbara, CA*

Professor of Physics. Experimentalist whose contributions include the elucidation of critical phenomena near the superfluid transition in liquid helium-4 and near magnetic phase transitions; the first experimental observation of chaotic behavior in a deterministic system; and the analysis of patterns in spatially extended non-equilibrium systems.

#### Moses H. W. Chan

*Pennsylvania State University,  
University Park, PA*

Evan Pugh Professor of Physics. Conducted experimental studies of phase transitions in quantum and classical fluids. Elucidated the effects of reduced dimensions, restricted geometries, and impurities on phase behavior. Discovered the supersolid phase in helium.

#### Paul A. Fleury

*Yale University, New Haven, CT*

Dean of Engineering and Frederick William Beinecke Professor of Engineering and Applied Physics. Condensed matter physicist. Advanced the optical spectroscopy of solids. Headed Sandia National Laboratory and major departments at Bell Laboratories.

#### Steven M. Girvin

*Yale University, New Haven, CT*

Professor of Physics and Applied Physics. Condensed matter theorist with interests in many-body problems, quantum phase transitions, low-dimensional systems, atomic physics, and quantum computation. Known for work on the quantum Hall effect, the superconductor-insulator transition, and the quantum mechanics of electrical circuits.

#### Jeffrey A. Harvey

*University of Chicago, Chicago, IL*

Enrico Fermi Distinguished Service Professor and Chair, Department of Physics. Codiscoverer of the heterotic string, a milestone in the quest for a unified theory of the laws of nature. Brought clarity to the nature of and interrelations among string theories through work on compactification, notably on orbifolds, and by elucidating the role of string solitons and instantons.

#### Alfred H. Mueller

*Columbia University, New York, NY*

Professor of Physics. Led the study of high-energy quantum chromodynamics (QCD). Developed concepts and techniques in QCD that permitted precise quantitative predictions and experimental tests, thereby helping to establish QCD

as the theory of the strong interactions. Recipient of the Sakurai Prize (American Physical Society).

### **Lisa Randall**

*Harvard University, Cambridge, MA*  
Professor of Physics. Particle theorist whose work on the effect of the geometry of extra dimensions on the hierarchy puzzle influenced thinking about particle physics, space, and gravity and brought phenomenology and string theory closer together. Contributed to supersymmetry breaking and the Standard Model.

### **Vladimir Borisovich Braginsky (FHM)**

*Moscow State University, Moscow, Russia*  
Professor of Physics. Formulated the concept of standard quantum limits on high-precision measurements that use conventional techniques, and invented quantum nondemolition methods to circumvent these limits. Developed technology for high-precision measurements including gravitational-wave detection and carried out experimental tests of the equivalence principle and other fundamental laws of physics.

## **Section 3: Chemistry**

### **A. Paul Alivisatos**

*Lawrence Berkeley National Laboratory; University of California, Berkeley, CA*  
Chancellor's Professor of Chemistry and Materials Science. Pioneered the development of the physical chemistry of semiconductor nanocrystals. Elucidated their structural, thermodynamic, optical, and electrical characteristics as a function of particle size. Developed synthetic procedures to achieve size control and demonstrated the first practical applications of these new materials.

### **Moungi Gabriel Bawendi**

*Massachusetts Institute of Technology, Cambridge, MA*  
Professor of Chemistry. Pioneer in the organometallic synthesis and physical characterization of semiconductor materials in the nanometer size range (quantum dots). Elucidated the structure of

electronic states in these quantum dots and established single quantum dot spectroscopy. Demonstrated applications of these quantum dots ranging from stimulated emission and lasing, electroluminescence, and biomedical imaging.

### **Peter Beak**

*University of Illinois at Urbana-Champaign, Urbana, IL*  
James R. Eiszner Endowed Chair in Chemistry. Made discoveries and provided unifying concepts in organic chemistry. Established thermodynamic differences for a number of isomeric systems. Has been influential in the design and execution of synthetic strategies.

### **Malcolm Harold Chisholm**

*Ohio State University, Columbus, OH*  
Distinguished Professor of Mathematical and Physical Sciences. Made contributions to the development of inorganic, organometallic, and materials chemistry. Pioneered the use of  $\pi$ -donor ligands such as amides and alkoxides and explored the use of metal-metal multiple bonds as reactive functional groups.

### **Eric N. Jacobsen**

*Harvard University, Cambridge, MA*  
Sheldon Emory Professor of Chemistry. Developed methods for the preparation of epoxides in enantiomerically pure form utilizing conceptually innovative approaches. Conceived the Mn (Salen) epoxidation method that is widely used in academia and industry. Subsequent work involving hydrolytic kinetic resolution led to myriad applications and mechanistic insights.

### **Peter Jacob Rossky**

*University of Texas at Austin, Austin, TX*  
Marvin K. Collie-Welch Regents Chair in Chemistry, Professor of Chemical Engineering, and Director, Institute for Theoretical Chemistry. Pioneered the theoretical atomistic description of chemical and biomolecular structure, reaction dynamics, and electronic processes in a liquid phase environment. Created new meth-

ods in classical and quantum statistical mechanics that elucidate the origin of experimental observations.

### **Henry Frederick (Fritz) Schaefer III**

*University of Georgia, Athens, GA*  
Graham Perdue Professor of Chemistry; Director, Center for Computational Quantum Chemistry. Applied methods of quantum chemistry to solve problems of interest to general chemists. Predicted the structure of methylene. Current research focuses on the silicon-carbon double bond.

### **Richard Palmer Van Duyne**

*Northwestern University, Evanston, IL*  
Charles E. and Emma H. Morrison Professor of Chemistry. Accomplishments include the discovery, development, and application of surface-enhanced Raman spectroscopy (SERS) and the development of nanosphere lithography (NSL) and its use in nanoparticle optics. Advanced all areas of science involving molecules adsorbed on surfaces and nanoparticles.

### **Bernard Lucas Feringa (FHM)**

*University of Groningen, Groningen, The Netherlands*  
Professor of Chemistry. Devised the first chiroptical molecular switch and the first light-driven unidirectional rotary molecular motor in studies on functional nanosystems. Developed the first catalytic enantioselective 1,4-addition of organometallic reagents with absolute stereocontrol using a novel class of chiral monodentate phosphoramidite ligands.

## **Section 4: Astronomy (including Astrophysics) and Earth Sciences**

### **Steven V. W. Beckwith**

*Space Telescope Science Institute, Baltimore, MD*  
Director. Leading observational astronomer in the areas of star formation, circumstellar disks, molecular emission, and infrared detectors and techniques. Directs

two international institutes and chairs strategic panels for the NRC, NASA, and ESA. Has advocated for the scientific productivity of the Hubble Space Telescope.

### **Charles L. Bennett**

*NASA Goddard Space Flight Center, Greenbelt, MD*  
Senior Scientist for Experimental Cosmology. As PI for NASA's Wilkinson Microwave Anisotropy Probe, led the team that mapped the cosmic microwave background sky, determined the age of the universe, the cosmological constant, the dark and baryonic matter, and the Hubble constant. On earlier NASA Cosmic Background Explorer, measured the cosmic spectrum and discovered temperature variations.

### **Claude R. Canizares**

*Massachusetts Institute of Technology, Cambridge, MA*  
Bruno Rossi Professor of Experimental Physics and Associate Provost. Directed the development of high-resolution spectrometers for the Einstein and Chandra X-ray observatories and devised the theoretical and practical basis for X-ray diagnostics of hot plasmas in celestial objects. Served as Director of the MIT Center for Space Research (1990–2002) and as Chairman of the Space Studies Board of the National Academy of Sciences (1994–2000).

### **R. Lawrence Edwards**

*University of Minnesota, Minneapolis, MN*  
Distinguished McKnight University Professor. Primarily responsible for the development and application of thermal ionization measurement of precise  $^{230}\text{Th}$  ages to the timing and causes of Quaternary climatic and oceanographic changes. Pioneered Sr/Ca and U/Ca thermometry and uranium-thorium-protactinium dating of carbonates, increasing understanding of past climate change and environmental problems.

### **Andrea Ghez**

*University of California, Los Angeles, CA*  
Professor of Astronomy. Developed high-spatial resolution im-

aging techniques to study star formation. Established the existence of a supermassive black hole at the center of our galaxy and determined its mass, position, and motion with unprecedented accuracy.

#### **Donald A. Gurnett**

*University of Iowa, Iowa City, IA*  
Roy J. Carver/James A. Van Allen Professor of Physics. Expert in the observation and interpretation of electromagnetic and plasma wave phenomena of Earth, Jupiter, Saturn, Uranus, and Neptune and the heliospheric medium. Designed instruments to gather information on these phenomena during spacecraft missions, including the Cassini mission orbiting Saturn and the Mars Express mission.

#### **Lyman Alexander Page, Jr.**

*Princeton University, Princeton, NJ*  
Professor of Physics. Developed new techniques to study the universe through the cosmic background radiation (CMB). Formulated experiments that measured the first peak in the CMB angular power spectrum, providing a determination of the total matter density in our universe. Founding member of NASA's Wilkinson Microwave Anisotropy Probe Project.

#### **Maria T. Zuber**

*Massachusetts Institute of Technology, Cambridge, MA*  
E. A. Griswold Professor of Geophysics. Leader in the study of planetary interior structure and deformation. Led the determination of the first high-resolution structural models for the Moon, Mars, and the asteroid Eros, and developed a suite of quantitative models for the interpretation of planetary deformational features.

### **Section 5: Engineering Sciences and Technologies**

#### **Lilia A. Abron**

*Peer Consultants, Rockville, MD*  
President and CEO. Advanced environmental engineering and sustainable design through work in both academia and the private sector.

#### **Arden L. Bement, Jr.**

*National Institute of Standards and Technology, Gaithersburg, MD*  
Director. Acting Director, National Science Foundation. Conducted research on radiation effects in materials, high-temperature semiconductors, and the processing-structure-property interrelationships in structural materials and thin-film devices. Promoted nuclear fuel management, reactor safeguards, and nuclear nonproliferation.

#### **Mary Cunningham Boyce**

*Massachusetts Institute of Technology, Cambridge, MA*  
Kendall Family Professor of Mechanical Engineering. Authority on the mechanical behavior of polymeric materials. Developed physical models at the level of microstructure for large strain deformation and failure of polymers that define the state of the field. Leads an interdepartmental research group that is reshaping the role of elastomers, polymers, polymer blends, and nanocomposites as engineering materials.

#### **Murray S. Daw**

*Clemson University, Clemson, SC*  
R. A. Bowen Professor of Physics. Developed three techniques in materials theory: the Embedded Atom Method, the Variational Density Matrix Method, and the Relevant Rate Extraction Theory. Work has especially benefited simulations of defects in metals.

#### **Mark E. Dean**

*International Business Machines Corporation, Tucson, AZ*  
IBM Fellow and Vice President, Storage Technology. Contributions include research and application of systems technologies spanning circuits to operating environments. Research and development accomplishments include high-performance microprocessors, systems and software, cellular systems structure (Blue Gene), and digital visualization.

#### **Sosale Shankara Sastry**

*University of California, Berkeley, CA*  
NEC Distinguished Professor of Electrical Engineering and Computer Sciences and Bioengineering; Chair, Department of Electrical Engineering and Computer

Sciences. Contributions in research include designs for "intelligent highways," new algorithms for air traffic control, autonomous software for rotary aircraft, and computer-assisted surgery. Director of the Information Technology Office of DARPA (1999–2001).

#### **Subra Suresh**

*Massachusetts Institute of Technology, Cambridge, MA*  
Ford Professor of Engineering and Head, Department of Materials Science and Engineering. Research has advanced materials science and engineering, in particular the study of mechanical response of structural and functional materials. Author of *Fatigue of Materials* and coauthor of *Thin Film Materials: Stress, Defect Formation, and Surface Evolution*.

#### **Herbert Gleiter (FHM)**

*Institute of Nanotechnology, Karlsruhe, Germany*  
Director. Performed pioneering work on the synthesis of nanocrystalline materials. Contributions have led to major technological innovations, including the new field of nanostructured materials. In the 1980s introduced the idea of synthesizing materials with nanocrystalline ( $\leq 100$  nm) grain size to achieve superior and novel properties.

#### **Anthony James Merrill Spencer (FHM)**

*University of Nottingham, Nottingham, United Kingdom*  
Emeritus Professor of Theoretical Mechanics. Devised continuum-mechanical theories for rigid-plastic and other fiber-reinforced materials and for the flow of granular materials and their implications. Contributed to the building of the theoretical mechanics school at the University of Nottingham.

### **Section 6: Computer Sciences (including Artificial Intelligence and Information Technologies)**

#### **Bernard Chazelle**

*Princeton University, Princeton, NJ*  
Professor of Computer Science. Helped establish the field of com-

putational geometry in theoretical computer science. Solved many long-standing questions in computational geometry, including optimal-time algorithms for simple polygon triangulation, line segment intersection, and higher-dimensional convex hull.

#### **James H. Clark**

*Shutterfly Corporation, Redwood City, CA*  
Chairman. Computer scientist and entrepreneur. Cofounded Silicon Graphics, Inc. (SGI) and Netscape. Developed the Geometry Engine Chip, a central element of SGI's technology.

#### **Barbara J. Grosz**

*Harvard University, Cambridge, MA*  
Higgins Professor of Natural Sciences; Dean of Science, Radcliffe Institute for Advanced Studies. Known for contributions in the fields of natural language processing and multi-agent collaboration, and for addressing fundamental problems in modeling collaborative activity. Pioneered the rigorous study of the structure of discourse.

#### **Takeo Kanade**

*Carnegie Mellon University, Pittsburgh, PA*  
U. A. and Helen Whitaker University Professor of Computer Science and Robotics. Director, the Robotics Institute at Carnegie Mellon University (1992–2001). Robotics researcher whose work spans many areas, including manipulators, sensors, computer vision, and multimedia. Advanced the development of direct-drive manipulators, automated face recognition, the most popular optical flow algorithm, and a 3-D construction method from multiple images.

#### **Edward D. Lazowska**

*University of Washington, Seattle, WA*  
Bill & Melinda Gates Chair in Computer Science & Engineering. Known for the design, implementation, and analysis of high-performance computing and communication systems. Chaired NSF Advisory Committee for Computer and Information Science and Engineering and cochaired President's Information Technology Advisory Committee.

## James L. Massey

Swiss Federal Institute of Technology (ETH), Zurich, Switzerland; Lund University, Lund, Sweden

Professor Emeritus of Digital Systems Engineering; Adjunct Professor of Information Technology. Contributed to information theory and to cryptography. Past president of the IEEE Information Theory Society and the International Association for Cryptologic Research.

## Henry Samuelli

Broadcom Corporation, Irvine, CA  
Cofounder, Chairman, and Chief Technical Officer. Innovator in broadband communications. Responsible for all research and development activities of Broadcom, a leading manufacturer of semiconductor solutions for broadband applications.

## Class II: Biological Sciences

### Section 1: Biochemistry and Molecular Biology

#### Tania A. Baker

Massachusetts Institute of Technology, Cambridge, MA  
Whitehead Professor of Biology; Investigator, Howard Hughes Medical Institute. Leader in biochemical studies of DNA transposition, the function of disassembly chaperones, and energy-dependent protein degradation. Advanced understanding of fundamental life processes ranging from viral replication to the proteolytic resculpting of the cellular proteome.

#### Donald Max Engelman

Yale University, New Haven, CT  
Eugene Higgins Professor of Molecular Biophysics and Biochemistry. Contributed to two areas of physical biochemistry: the use of neutron scattering to establish the protein arrangement in the small ribosomal subunit; and the use of computational, NMR, X-ray scattering, and protein engineering methods to study the folding, assembly, and structure of membrane proteins.

#### Carl Frieden

Washington University School of Medicine, St. Louis, MO  
Wittcoff Professor and Head, Department of Biochemistry and Molecular Biophysics. Contributed to the fields of enzyme kinetics and mechanisms, regulatory enzymes, actin polymerization, and protein folding. Developed the concept of hysteretic enzymes and the use of fluorine NMR for studying protein folding. Devised programs for analyzing complete time courses of enzymatic reactions.

#### Paul Lawrence Modrich

Duke University Medical Center, Durham, NC  
James B. Duke Professor of Biochemistry; Investigator, Howard Hughes Medical Institute. Established the molecular mechanism by which the DNA mismatch repair system prevents mutations. Assigned activities to bacterial and human mismatch repair proteins and demonstrated that tumor cells derived from patients with hereditary nonpolyposis colon cancer are defective in this reaction.

#### Linda Lea Randall

University of Missouri-Columbia, Columbia, MO  
Professor and Wurdack Chair of Biochemistry. Contributed to the understanding of protein export and molecular chaperones. Laid the foundations for biochemical study of bacterial protein export, discovered that modulation of protein folding was crucial for export, demonstrated the central role of molecular chaperones, and established the importance of kinetic partitioning.

#### Aziz Sancar

University of North Carolina, Chapel Hill, NC  
Kenan Professor of Biochemistry and Biophysics. Authority in the field of DNA repair. Elucidated the properties and mechanisms of the enzymes responsible for three different repair systems. Isolated a protein that couples transcription and repair.

#### Graham C. Walker

Massachusetts Institute of Technology, Cambridge, MA  
American Cancer Society Research Professor; Howard Hughes Medical Institute Professor. Elucidated how cells respond to DNA damage by inducing expression of repair pathway genes. Carried out pathbreaking work on the biochemistry of plant-microbe signaling.

#### Robert Hugh Waterston

University of Washington, Seattle, WA  
Professor and William Gates III Endowed Chair of Genome Sciences. Brought whole-genome sequencing of metazoan organisms to reality through leadership of the project to sequence the genome of the nematode *Caenorhabditis elegans*. Played a central role in the determination, analysis, and public release of the sequences of the human, mouse, and other genomes.

### Section 2: Cellular and Developmental Biology, Microbiology, and Immunology (including Genetics)

#### Gary G. Borisy

Northwestern University Feinberg School of Medicine, Chicago, IL  
Leslie B. Arey Professor of Cell and Molecular Biology. Advanced knowledge of how cells organize their cytoplasm. Participated in the discovery of tubulin, elucidated microtubule dynamics, introduced novel techniques to analyze cytoskeletal function in living cells, dissected the mechanism of chromosome movement, and furthered understanding of the supramolecular basis of the actin machinery in cell motility.

#### Marian B. Carlson

Columbia University College of Physicians and Surgeons, New York, NY  
Professor of Genetics and Microbiology. Leader in the field of yeast gene regulation. Identified the roles of the SWI-SNF chromatin remodeling complex in transcriptional regulation. Made discoveries elucidating global reg-

ulatory roles of the Snf1 protein kinase and its human homologue, AMPK, in the metabolic response to glucose signals.

#### Scott David Emr

University of California School of Medicine, San Diego, CA  
Professor of Cellular and Molecular Medicine; Investigator, Howard Hughes Medical Institute. First to establish a role for phosphoinositide lipids in the spatial and temporal control of membrane trafficking pathways, to identify numerous effector molecules (that contain FYVE and PX domains) that directly bind the lipid PtdIns(3)P, and to identify the molecular machinery (ESCRT complexes) required for receptor down-regulation and HIV viral binding.

#### Andrew Z. Fire

Stanford University, Stanford, CA  
Professor of Pathology and Genetics. Participated in developing methods to reintroduce genes into *C. elegans* and to inactivate genes using double-stranded RNA. Uses these methods to address the roles of double-stranded RNA and other unique nucleic acid structures in animal development and immunity.

#### Donald Emil Ganem

University of California, San Francisco, CA  
Professor of Microbiology and Immunology; Investigator, Howard Hughes Medical Institute. Made contributions to the understanding of the hepatitis B virus infection and to the study of epidemiology, replication, and pathogenesis of the virus that causes Kaposi's sarcoma, one of the leading tumors in patients with AIDS.

#### Leonard P. Guarente

Massachusetts Institute of Technology, Cambridge, MA  
Novartis Professor of Biology. Made important discoveries in transcriptional regulation using yeast. Discovered that the gene SIR2 regulates the life span of yeast cells and roundworms. Work contributes to the molecular study of aging.

### **Erin K. O'Shea**

*University of California,  
San Francisco, CA*

Professor of Biochemistry and Biophysics; Assistant Investigator, Howard Hughes Medical Institute. Made breakthroughs in the regulation of gene expression. First determined the mechanism of a coiled-coil transcription factor. Demonstrated how specific phosphorylation of a transcription factor determines its localization and regulatory activity and how inositol polyphosphates recruit chromatin remodeling factors.

### **Douglas C. Wallace**

*University of California, Irvine, CA*

Donald Bren Professor of Biological Sciences and Molecular Medicine. Pioneer in the study of human mitochondrial DNA (mtDNA) genetics. Defined the principles of mtDNA inheritance, surveyed global mtDNA variation permitting reconstruction of ancient human origins and migration, discovered the first inherited mtDNA disease, and demonstrated the importance of mtDNA variation in aging and degenerative diseases.

### **Anthony James Pawson (FHM)**

*Samuel Lunenfeld Research Institute,  
Toronto, Canada*

University Professor of Medical Genetics and Microbiology. Fundamentally changed the view of cellular regulation and signal transduction. Discovered the Src homology 2 domain and showed that tyrosine kinases exert effects through modular protein-protein interactions. Went on to establish that interaction domains provide a general paradigm through which cells are organized.

### **Masatoshi Takeichi (FHM)**

*RIKEN Center for Developmental  
Biology, Kobe, Japan*

Professor and Director. Discovered that cell-cell adhesion is mediated by cadherins, transmembrane surface proteins that mediate homotypic binding between neighboring cells. Demonstrated that a code exists such that cells with like cadherins attach to each other.

## **Section 3: Neurosciences, Cognitive Sciences, and Behavioral Biology**

### **Huda Akil**

*University of Michigan,  
Ann Arbor, MI*

Gardner Quarten Distinguished University Professor of Neuroscience and Psychiatry and Co-Director and Senior Research Scientist, Mental Health Research Institute. Made discoveries in the neurobiology of behavior, especially in the molecular mechanisms underlying responsiveness to stress and pain. Demonstrated a role for endorphins in addiction and in related studies on the neuroendocrinology of anxiety and depression. Advanced understanding of emotionality and human behavioral dysfunction.

### **Mark F. Bear**

*Massachusetts Institute of  
Technology, Cambridge, MA*

Picower Professor of Neuroscience; Investigator, Howard Hughes Medical Institute. Contributed to neuroscience by elucidating the synaptic and molecular mechanisms of plasticity in the cerebral cortex. Demonstrated that excitatory synapses throughout the mammalian cerebral cortex are bidirectionally modifiable, showed how these modifications can be reliably induced, and furthered understanding of the underlying molecular mechanisms.

### **Thomas James Carew**

*University of California, Irvine, CA*

Bren Professor and Chair of Neurobiology and Behavior. Leading neuroscientist investigating the cellular neurobiology of learning and memory. Extensive research on neuroplasticity in *Aplysia* revealed synaptic mechanisms mediating several forms of memory, including habituation, sensitization, and associative learning, as well as time-dependent phases of synaptic facilitation and memory.

### **Catherine Dulac**

*Harvard University, Cambridge, MA*

Professor of Molecular and Cellular Biology; Investigator, Howard Hughes Medical Institute. Identified essential signaling components of the murine vomeronasal

organ, including novel multigene families encoding candidate pheromone receptors. Used molecular and genetic tools to analyze the coding of pheromone signals in the mammalian brain and the specificity of the pheromone response leading to gender discrimination and aggression.

### **Susan Hockfield**

*Massachusetts Institute of  
Technology, Cambridge, MA*

President. Formerly William Edward Gilbert Professor of Neurobiology and Provost, Yale University. Introduced powerful methods for producing monoclonal antibodies. Used this methodology to discover some of the first cell-type molecular markers, which have enriched understanding of brain development and plasticity.

### **Steven E. Hyman**

*Harvard University, Cambridge, MA*

Professor of Neurobiology and Provost. Scientist at the intersection of molecular neurobiology and psychiatry. Served as Director of Psychiatry Research at Massachusetts General Hospital and as the first faculty Director of Harvard's interfaculty initiative on Mind/Brain/Behavior. Previously Director of the National Institute of Mental Health.

### **Peter L. Strick**

*University of Pittsburgh,  
Pittsburgh, PA*

VA Senior Research Career Scientist, Professor of Neurobiology, and Co-Director, Center for the Neural Basis of Cognition. Authority on brain circuitry and motor behavior. Unraveled the matrix of interconnections that forms the basis of the brain's motor systems and provided a framework for understanding the cognitive control of normal movement and movement disorders. Served as Editor in Chief of the *Journal of Neurophysiology*.

### **Sten Grillner (FHM)**

*Karolinska Institute,  
Stockholm, Sweden*

Professor of Neurophysiology and Behavior. Made fundamental discoveries in the neurophysiology of the motor function of the spinal cord. Elucidated the locomotion-related spinal circuit-

ry of the lamprey with respect to connectivity, neurophysiology, biophysics, pharmacology, and neural modeling.

### **Richard G. M. Morris (FHM)**

*University of Edinburgh,  
Edinburgh, United Kingdom*

Professor of Neuroscience. Pioneered the study of spatial memory in rodents by devising a navigational water maze (the Morris maze). Used this and other methods to illuminate the role of the hippocampus in memory. Discovered the role of NMDA receptors in spatial learning.

## **Section 4: Evolutionary and Population Biology and Ecology**

### **Ted J. Case**

*University of California,  
San Diego, CA*

Professor of Biology. Ecologist known both for empirical and theoretical work, including studies of the mechanisms of species invasions. Developed theories of alternative stable states in communities. Defined concepts and methods for measuring higher-order (multispecies) interactions. Developed theories of spatial coevolution and continental biogeography.

### **Bernd Heinrich**

*University of Vermont,  
Burlington, VT*

Emeritus Professor of Biology. Research biologist and nature writer. Pioneered studies of insect thermoregulation and pollination energetics. Author of *Bumblebee Economics*, *Ravens in Winter*, and *The Hot-blooded Insects*.

### **Bruce R. Levin**

*Emory University, Atlanta, GA*

Samuel Candler Dobbs Professor of Biology. Pioneer in the study of the population biology and evolution of bacteria and their viruses and plasmid. Elucidated resource-based competition, host-parasite coevolution, genetic diversity, and the genetic structure of bacterial populations. Current research includes theoretical and experimental studies of the evolution of virulence in microparasites, and the epidemiology and within-host

population and evolutionary dynamics of bacterial infections, antibiotic treatment, antibiotic resistance and its control.

### **Michael John Novacek**

*American Museum of Natural History, New York, NY*

Senior Vice President, Provost of Science, and Curator of Paleontology. Advanced understanding of mammalian evolution and relationships using diverse evidence ranging from fossils to genes. Made discoveries in the field that have fundamentally changed views of vertebrate evolution at key intervals. Noted author and spokesperson for the natural sciences.

### **Stuart L. Pimm**

*Duke University, Durham, NC*

Doris Duke Chair of Conservation Ecology. Delineated structures of ecological food webs, the reasons why only certain invading species succeed and become pests. Elucidated factors determining expected extinction times for plant and animal populations. Applied these insights to problems of conservation biology.

### **Loren H. Rieseberg**

*Indiana University, Bloomington, IN*

Class of '54 Professor of Biology. Merged modern tools of genome analysis with classic and innovative approaches in ecology to demonstrate the relevance of hybridization and chromosomal rearrangements in evolution. Pioneered the application of genetic map-based approaches to natural populations and developed wild sunflowers into a leading plant model for studies of speciation.

### **Gene E. Robinson**

*University of Illinois at Urbana-Champaign, Urbana, IL*

G. William Arends Professor of Integrative Biology and Director of the Neuroscience Program. Entomologist. Elucidated the endocrine, neural, and genetic regulation of behavior in social insects at both the individual and colony levels. Advanced understanding of the role of genes, hormones, and neurochemicals in the evolution of social behavior.

### **Bess B. Ward**

*Princeton University, Princeton, NJ*

Professor of Geosciences. Biological oceanographer whose work unites the fields of microbiology and geochemistry. Developed immunological and molecular probes for quantification of functionally related organisms and coupled these with autoradiographic and isotopic analyses to link the oceanic population to global reaction rates, forcing major revisions in understanding the marine nitrogen cycle.

### **Bryan C. Clarke (FHM)**

*University of Nottingham, Nottingham, United Kingdom*

Professor Emeritus of Genetics. Demonstrated the widespread occurrence and importance of frequency-dependent selection in nature. Helped to explain such diverse phenomena as geographical variation in gene frequencies, evolutionary dynamics of host-parasite interactions, speciation mechanisms in snails, and the maintenance of genetic variation in human populations.

### **Rodolfo Dirzo (FHM)**

*Universidad Nacional Autónoma de México, Mexico City, Mexico*

Professor of Ecology. Leading tropical forest ecologist and conservation biologist. Studied the dynamics of tropical forests and the evolution of plant-animal interactions. Conducted classical experimental studies on the significance to the ecosystem of the loss of large herbivores from tropical forests. Documented the causes and rates of tropical deforestation.

## **Section 5: Medical Sciences (including Physiology and Pharmacology), Clinical Medicine, and Public Health**

### **Edward J. Benz, Jr.**

*Dana-Farber Cancer Institute, Boston, MA*

President and CEO. Academic hematologist whose demonstration that Cooley's Anemia is due to a deficiency of beta globin messenger RNA was the first verification

that molecular biology could be applied to the study of human disease. Made contributions to the fields of cell disorders, gene regulation, and membrane biology.

### **Charles J. Epstein**

*University of California, San Francisco, CA*

Professor of Pediatrics and Chief, Division of Medical Genetics. Conducted research on the development of animal models for studying the pathogenesis of Down's syndrome and the genetic control of oxygen-free radical metabolism. Played a leading role in guiding the development of medical genetics into a recognized and independent medical specialty and in shaping many of its research and clinical institutions. President-elect, American College of Medical Genetics.

### **Jeffrey Ivan Gordon**

*Washington University School of Medicine, St. Louis, MO*

Dr. Robert J. Glaser Distinguished University Professor and Head of Molecular Biology and Pharmacology. Conducts research in gastrointestinal development. Devised mouse models that have provided insight into stem cell biology, epithelial cell renewal, and the molecular foundations of symbiotic host-bacterial relationships in the gut. Discovered and characterized the enzyme responsible for protein N-myristoylation and its biological significance.

### **James Larry Jameson**

*Northwestern University Feinberg School of Medicine, Chicago, IL*

Irving S. Cutter Professor and Chair of Medicine. Unraveled steps in the complex genetic cascade that governs reproduction and thyroid hormone action through studies of naturally occurring mutations in human genes. Research links the functional effects of mutations with clinical and molecular pathophysiology, leading to a new understanding of human endocrine development and hormone action.

### **Jay A. Levy**

*University of California, San Francisco, CA*

Professor of Medicine. Conducted retrovirus research, highlighted

by the independent discovery of HIV and earlier xenotropic viruses, that yielded crucial information on virus-host cell interactions. Recognized novel CD8+ cell non-cytotoxic anti-HIV responses and identified natural anti-HIV factors. Discoveries have far-reaching importance for treatment and vaccine development.

### **Joseph Roy Nevins**

*Duke University Medical Center, Durham, NC*

James B. Duke Professor and Chairman of Molecular Genetics and Microbiology; Director, Duke Center for Genome Technology; Investigator, Howard Hughes Medical Institute. Elucidated mechanisms that regulate cell proliferation and that contribute to cancer development. Discovered the E2F transcription factor, discovered that E2F is a functional partner with the retinoblastoma tumor suppressor, and demonstrated the role of the Rb-E2F pathway in the control of cell-cycle progression.

### **Thalia Papayannopoulou**

*University of Washington, Seattle, WA*

Professor of Hematology. Conducts research in hematology with an emphasis on stem cell biology. Improved understanding of the mechanisms of stem cell mobilization and stem cell homing. Showed (with George Stamatoyannopoulos) that fetal hemoglobin can be induced by perturbations of erythropoiesis by cytotoxic drugs, providing the basis for the introduction of cytotoxic drug treatment in hemoglobinopathies.

### **George Stamatoyannopoulos**

*University of Washington, Seattle, WA*

Professor of Medicine (Medical Genetics) and Genome Sciences. Conducts research in molecular hematology, including the cellular control of hemoglobin switching. Showed (with Thalia Papayannopoulou) that fetal hemoglobin can be induced by perturbations of erythropoiesis by cytotoxic drugs, providing the basis for the introduction of cytotoxic drug treatment in hemoglobinopathies.

## George D. Yancopoulos

*Regeneron Pharmaceuticals, Inc.,  
Tarrytown, NY*

President, Research Laboratories, and Chief Scientific Officer. Elucidated and biologically characterized several families of cytokine and tyrosine kinase receptors and their ligands, and demonstrated their roles in regulating neural, muscular, and vascular development. Originated the technique of epitope tagging to define receptor complex composition and provided unifying concepts for the understanding of receptor mediated signaling.

## Lucio Luzzatto (FHM)

*Instituto Nazionale per la Ricerca  
sul Cancro (IST), Genova, Italy*

Scientific Director. Made contributions to the understanding of glucose-6-phosphate dehydrogenase (G6PD) deficiency. Established its role in resistance to malaria, cloned the cDNA and the gene, and characterized several mutations causing the deficiency. Using G6PD as a marker, demonstrated the clonal origin of paroxysmal nocturnal hemoglobinuria (PNH) and pioneered studies of its genetic basis.

## Class III: Social Sciences

### *Section 1: Social Relations (Anthropology, Archaeology, Sociology, Social and Developmental Psychology, Education, Demography, Geography)*

## Marilynn B. Brewer

*Ohio State University,  
Columbus, OH*

Professor of Psychology. Field work established that ethnocentrism yields negative judgments about particular characteristics of outgroups, while evaluation of ingroups tends to be uniformly positive. Conducted experiments that indicated that intergroup discrimination is driven primarily by ingroup favoritism rather than outgroup derogation.

## Dedre Gentner

*Northwestern University,  
Evanston, IL*

Professor of Psychology, Education, and Social Policy, and Director of the Cognitive Science Program. Research has focused on analogy and similarity in learning and reasoning. Structure-mapping theory led to insights on the role of relations in conceptual processing and to a computational model of similarity. Contributions include work on mental models and on the development of cognition and language.

## David C. Grove

*University of Florida,  
Gainesville, FL*

Professor of Anthropology. Authority on the period when Mexican cultures first displayed hereditary inequality and chiefly power. Directed excavations on the Mexican Altiplano, temperate Morelos, and the Veracruz Coast that furthered understanding of lowland-highland heterogeneity and interaction.

## Michael Hechter

*University of Washington,  
Seattle, WA*

Professor of Sociology. Developed new theoretical approaches to questions in comparative social history and the origins of values and norms. Author of *Internal Colonialism: The Celtic Fringe in British National Development*, *Principles of Group Solidarity*, and *Containing Nationalism*.

## Roger E. Kasperson

*Stockholm Environment Institute,  
Stockholm, Sweden*

Executive Director. Geographer. Extended the scientific assessment of risk into the social realm, compared its use in national cultures and multinational corporations, created a theory for the social amplification and attenuation of risk, analyzed the moral bases of technological choice, and assessed regional environmental degradation.

## Mark R. Lepper

*Stanford University, Stanford, CA*

Professor and Chair of Psychology. Made contributions to the understanding of social-psychological aspects of motivation. Conducted

theoretical and empirical studies of the distinction between intrinsic and extrinsic motivation and of their educational effects. Applies this research to identify the most effective motivational and instructional techniques of expert tutors.

## Donald G. Saari

*University of California, Irvine, CA*

Distinguished Professor of Economics and Mathematics; Director, Institute for Mathematical Behavioral Sciences. Conducted analysis of dynamical systems of classical models of economic equilibrium, which showed nonconvergence, and of the Newtonian n-body systems, which showed collision orbits are improbable. Created geometric description to explain voting paradox.

## Norbert Schwarz

*University of Michigan,  
Ann Arbor, MI*

Research Professor, Institute for Social Research; Professor of Psychology; Professor of Marketing. Conducted studies of judgment, revealing biases in information processing and decision-making. Research interests focus on the interplay of feeling and thinking, the role of conversational processes in reasoning, and the nature of mental construal processes in judgment.

## Robert James Sharer

*University of Pennsylvania,  
Philadelphia, PA*

Shoemaker Professor of Anthropology. Contributor to new models of ancient Maya civilization, particularly in the area of secondary state formation. Leader in combining excavation data with hieroglyphic writing to illuminate the political and ritual behaviors of Maya rulers from A.D. 400 – 900. Author of *The Ancient Maya*.

## Rubie S. Watson

*Harvard University, Cambridge, MA*

Curator of Comparative Ethnology. Specialist on Chinese marriage ceremonies. Published on Chinese women's patterns of culture and lineage organization among Cantonese villagers. At the Peabody Museum, reintroduced material culture into mainstream sociocultural anthropology.

## Yu Xie

*University of Michigan,  
Ann Arbor, MI*

Otis Dudley Duncan Professor of Sociology and Statistics; Research Professor, Institute for Social Research. Developed statistical tools for comparative analysis of social mobility and human fertility. Deepened understanding of gender differences in science careers, socioeconomic outcomes of Asian Americans, and social and economic inequality in China.

## Section 2: Economics

### Abhijit Vinayak Banerjee

*Massachusetts Institute of  
Technology, Cambridge, MA*

Professor of Economics; Director, Poverty Action Lab. Applied economic theorist with broad interests. Made contributions to social learning in games, economic analysis of income and wealth distribution, and the application of contract theory to a range of issues involving developing economies. Recent work helped establish development economics as a subfield within applied economics.

### Jeremy Israel Bulow

*Stanford University, Stanford, CA*

Richard Stepp Professor of Economics, Graduate School of Business. Developed the first formal model of durable goods and characterized firms' interactions through "strategic substitutes and complements" (with Geanakoplos and Klemperer). Made contributions to sovereign debt (with Rogoff), auction theory (with Roberts and Klemperer), tax and labor policy (with Summers), and pension theory.

### Avner Greif

*Stanford University, Stanford, CA*

Bowman Family Professor in the Humanities and Sciences. Expert on European economic history, institutional economics and development. Applied game theory and historical analysis in the study of the development of economic institutions, their interrelations with political, social, and cultural factors, and their impact on economic growth.

### **Maurice Obstfeld**

*University of California, Berkeley, CA*  
Class of 1958 Professor of Economics. Contributed to the modern theory of the interactions of employment, output, interest rates, price levels, and exchange rates among countries in a global economy. Most recent work considers the role of capital flows in the major fluctuations experienced by a number of developing countries.

### **Christina Romer**

*University of California, Berkeley, CA*  
Class of 1957 Professor of Economics. Researcher in historical macroeconomics. Work showed that much of the apparent stabilization of the postwar American economy was an illusion caused by inconsistent measurement techniques. Used new data sources to understand the sources and effects of monetary policy actions and analyzed the causes of the Great Depression.

### **Mark Allen Satterthwaite**

*Northwestern University, Evanston, IL*  
Professor of Managerial Economics and A. C. Buehler Professor of Hospital and Health Services Management. Research focuses on economic institutions' ability to induce self-interested individuals to reveal their preferences accurately so that efficient allocations can be implemented. The Gibbard-Satterthwaite theorem in social choice and the Myerson-Satterthwaite theorem in microeconomics established fundamental limits on institutions' abilities to accomplish this.

### **Michael Woodford**

*Columbia University, New York, NY*  
John Bates Clark Professor of Political Economy. Monetary theorist and leader in the development of an integrated analysis of monetary and fiscal policy. Codeveloper of a general equilibrium model with Keynesian properties.

### **Guy Laroque (FHM)**

*INSEE-CREST (National Institute of Statistics and Economic Studies), Paris, France*  
Director, Macroeconomics Laboratory. Produced theoretical models, econometric techniques, and

empirical work on a variety of problems. Work encompasses monetary theory, business-cycle models, inventory models, housing markets with fixed costs, theoretical and empirical analysis of commodities markets, and social security.

## **Section 3: Political Science, International Relations, and Public Policy**

### **James E. Alt**

*Harvard University, Cambridge, MA*  
Frank G. Thomson Professor of Government. Made interdisciplinary contributions in political economy. Conducts research on parties, political institutions, and fiscal policy in industrial countries. Founding Director of the Center for Basic Research in the Social Sciences. Coedited the series "The Political Economy of Institutions and Decisions."

### **Jonathan Bendor**

*Stanford University, Stanford, CA*  
Walter and Elise Haas Professor of Political Economics and Organizations. Contributed to the study of bureaucracy (e.g., redundancy, delegation, and other ways of easing individual-level cognitive constraints; causes and effects of political control), theory of collective action (e.g., how uncertainty affects cooperation; the evolution of norms), and the theory of bounded rationality (e.g., satisficing; incrementalism).

### **David Collier**

*University of California, Berkeley, CA*  
Professor of Political Science. Leading scholar in comparative and political methodology whose research has focused on Latin America. Work bridges quantitative and qualitative methods.

### **William Arthur Galston**

*University of Maryland, College Park, MD*  
Saul I. Stern Professor of Civic Engagement. Published five books and dozens of scholarly articles on political philosophy. Leader in efforts to revitalize civic learning and engagement. Former dep-

uty assistant to President Clinton for domestic policy.

### **Nancy Lipton Rosenblum**

*Harvard University, Cambridge, MA*  
Senator Joseph Clark Professor of Ethics in Politics and Government. Leading scholar in political theory in both the historical and analytic mode. Author of *Bentham's Theory of the Modern State*, *Another Liberalism*, and *Membership and Morals*.

### **Stephen Skowronek**

*Yale University, New Haven, CT*  
Pelatiah Perit Professor of Political and Social Science. Authority on the development of American national institutions. Instrumental in building a field of American political development in contemporary political science and in fostering a historical-institutional approach to political scholarship. Research on presidential politics recasts the uses of political history for understanding leadership in contemporary America.

### **Rogers M. Smith**

*University of Pennsylvania, Philadelphia, PA*  
Christopher H. Browne Distinguished Professor of Political Science. Authority on U.S. constitutional law and advocate of historical-institutional approaches to public law studies. Devised an influential account of American citizenship and enriched debates over the roles of race, class, and gender in American politics.

### **Jean F. P. Blondel (FHM)**

*European University Institute, Florence, Italy*  
External Professor. Cofounder and first Executive Director of the European Consortium for Political Research. Worked to transform European political science from a fragmented, nationally confined, and professionally underdeveloped discipline by establishing an international enterprise that now has over two hundred fifty member departments and over four thousand affiliated scholars. Awarded the Johan Skytte Prize in Political Science.

## **Section 4: Law (including the Practice of Law)**

### **Philip Chase Bobbitt**

*University of Texas Law School, Austin, TX*  
A. W. Walker Centennial Chair in Law. Contributed to the conceptualization of American constitutional decision-making, to the understanding of the development of the modern state, and to the intricacies of national security policy. Author of *Constitutional Interpretation* and *The Shield of Achilles: War, Peace and the Course of History*.

### **George Philip Fletcher**

*Columbia Law School, New York, NY*  
Cardozo Professor of Jurisprudence. Has written and lectured in the fields of torts, criminal law, comparative law, and constitutional law. Published nine books and over a hundred articles. Received a Coif Award for *Rethinking Criminal Law*.

### **Michael J. Graetz**

*Yale Law School, New Haven, CT*  
Justus S. Hotchkiss Professor of Law. Recognized expert on public finance. Contributed to the understanding and improvement of federal tax policy and social insurance policy through academic scholarship and public service.

### **Joel F. Handler**

*University of California at Los Angeles School of Law, Los Angeles, CA*  
Professor of Law. Authority on social welfare law and poverty. Conducted empirical studies on poverty, political participation, and administration of justice. Author of *Social Movements and the Legal System*, *Down From Bureaucracy*, and *The Poverty of Welfare Reform*. President, Law and Society Association (1991–1993).

### **Daniel J. Meltzer**

*Harvard Law School, Cambridge, MA*  
Story Professor of Law. Authority on federal jurisdiction, American federalism, and criminal law and procedure. Coauthor of *Hart & Weschler's The Federal Courts and the Federal System*. Published on, inter alia, sovereign immunity,

constitutional remedies, and federal habeas corpus jurisdiction.

### Thomas Wendell Merrill

Columbia University Law School,  
New York, NY

Charles Keller Beekman Professor. Legal scholar specializing in administrative law, property law, constitutional law, and the Supreme Court. Recent work focuses on understanding the concept of property in constitutional law and explaining standardization in property law. Served as Deputy Solicitor General (1987–1990).

### Diane P. Wood

United States Court of Appeals for the Seventh Circuit, Chicago, IL  
Circuit Court Judge. Leading scholar of comparative law. Expert in antitrust law, federal civil procedure, and international trade and business. Distinguished service in government (U.S. Department of Justice) and in the academic world (extensive publications on international comparative law).

## Class IV: Humanities and Arts

### Section 1: Philosophy and Religious Studies

#### Ned Block

New York University, New York, NY  
Professor of Philosophy and Psychology. Leading philosopher of mind and psychology. Known for critical reactions to functionalism and for a long series of papers, spanning three decades, which maintains the irreducibility of qualia, sensations, imagery, and consciousness to either representationalist or functionalist viewpoints. Also known for work on the IQ controversy.

#### Alvin Ira Goldman

Rutgers University,  
New Brunswick, NJ  
Board of Governors Professor of Philosophy and Cognitive Science. Contributed to epistemology, philosophy of mind, metaphysics, and political and legal theory. Championed the causal theory and reliabilism in epistemology and the simulation theo-

ry of mind reading in cognitive science. Author of *Epistemology and Cognition and Knowledge in a Social World*.

#### Wayne A. Meeks

Yale University, New Haven, CT  
Woolsey Professor of Biblical Studies Emeritus. Influential scholar in New Testament studies. Helped shape the field with work on the social origins of early Christianity and early Christian literature. Author of *The Origins of Christian Morality* and *The First Urban Christians*.

#### Mark A. Noll

Wheaton College, Wheaton, IL  
McManis Professor of Christian Thought. Author on and historian of American Christianity, especially the development of religious thought in America, and the rise and long cultural hegemony of Protestant Evangelicalism.

#### Peter Albert Railton

University of Michigan,  
Ann Arbor, MI  
John Stephenson Perrin Professor of Philosophy. Made contributions to ethics and the philosophy of science. Known in ethics for a defense of moral realism. Advanced understanding of scientific explanation and probability. Author of *Facts, Values, and Norms: Essays Toward a Morality of Consequence*.

#### Samuel Scheffler

University of California, Berkeley, CA  
Class of 1941 World War II Memorial Professor of Philosophy and Law. Leading moral and political philosopher. Books include *The Rejection of Consequentialism*, *Human Morality*, and *Boundaries and Allegiances*. Advisory Editor of *Philosophy and Public Affairs*.

### Section 2: History

#### James L. Axtell

College of William & Mary,  
Williamsburg, VA  
William R. Kenan, Jr. Professor of Humanities. Historian of American colonialism, ethnohistory, and education. Has written widely on Native American history and culture. Author of *The Invasion*

*Within: The Contest of Cultures in Colonial North America*. Also known for studies of higher education in the United States.

#### Ira Berlin

University of Maryland,  
College Park, MD  
Distinguished University Professor. Expert on slavery and emancipation in the Americas and author of *Generations of Captivity: A History of African American Slavery, Many Thousands Gone: The First Two Centuries of Slavery in North America*, and *Slaves Without Masters: The Free Negro in the Antebellum South*. Founder of the Freedman and Southern Society Project and past president of the Organization of American Historians.

#### Dipesh Chakrabarty

University of Chicago,  
Chicago, Illinois  
Laurence A. Kimpton Distinguished Service Professor of History and South Asian Languages and Civilizations. Founding member of the journal *Subaltern Studies*. Combines social history of modern India with postcolonial historiography in works that influence the field at large. Recent books include *Provincializing Europe: Postcolonial Thought and Historical Difference* and *Habitations of Modernity*.

#### G. Robert A. Conquest

Stanford University, Stanford, CA  
Fellow, Hoover Institution. Noted historian of the Soviet Union. Revealed Stalin's purges and forced collectivization of Soviet peasantry to the Western world. Books include *The Great Terror* and *Reflections on a Ravaged Century*. Has also written many works of poetry, criticism, verse translation, and fiction.

#### Michael A. Cook

Princeton University, Princeton, NJ  
Cleveland E. Dodge Professor of Near Eastern Studies. Authority on Muslim history and thought. Published books on early Muslim dogma, Muhammad, and the Koran. Recently published *Commanding Right and Forbidding Wrong in Islamic Thought*.

#### Anne Firor Scott

Duke University, Durham, NC  
W. K. Boyd Professor of History Emerita. Pioneer of women's history in the United States. Noted for her scholarly work and publications, including *The Southern Lady*, *Making the Invisible Woman Visible*, *Natural Allies*, and *Unheard Voices*. Past president of the Organization of American Historians.

#### William Sewell

University of Chicago, Chicago, IL  
Max Palevsky Professor of Political Science and History. Works on the history of early modern and modern France, especially the Revolutions of 1789, 1830, and 1848; and on the relationship between history and social theory. Recipient of American Sociological Association awards for articles in historical sociology, cultural sociology, and sociological theory.

#### Jean Strouse

New York Public Library,  
New York, NY  
Director, Dorothy and Lewis B. Cullman Center for Scholars and Writers. Writer, biographer, and historian. Wrote a biography of Alice James, which won the Bancroft Prize in American History and Diplomacy, and a biography of J. Pierpont Morgan. Recipient of MacArthur and Guggenheim fellowships. Past president of the Society of American Historians.

#### (Albert) Raymond (Maillard) Carr (FHM)

Oxford University, Oxford,  
United Kingdom  
Honorary Fellow, Christ Church College and St. Antony's College. Historian of modern Spain. Helped to create St. Antony's College and served as Warden there for nearly twenty years. Editor of and contributor to *Spain: A History*.

#### Emilio Gabba (FHM)

University of Pavia, Pavia, Italy  
Professor Emeritus. Historian of the classical world. Known for work on a variety of problems, including agrarian history, the Romanization of Italy, and classical historiography. Member of the Accademia Nazionale dei Lincei in Italy.

### Jürgen Kocka (FHM)

Wissenschaftszentrum Berlin für Sozialforschung, Berlin, Germany  
President. Historian. Author of numerous studies of modern, European, and comparative history. Advocate of social science approaches to history. Played a role as a member of the German Scientific Advisory Council in restructuring East German academic institutions after unification.

## Section 3: Literary Criticism (including Philology)

### Joan W. Bresnan

Stanford University, Stanford, CA  
Sadie Dernham Patek Professor in Humanities. Leading figure in syntactic theory. Originated the theory of Lexical-Functional Grammar and its optimality-theoretic extensions. Conducted quantitative investigations revealing that grammar is inherently variable and stochastic in nature, a highly plastic cognitive system sensitively tuned to the frequencies of the environment.

### Richard H. Brodhead

Duke University, Durham, NC  
President. A. Bartlett Giamatti Professor of English at Yale University and Dean of Yale College (through June 30, 2004). Specialist on American literature. Published books on Hawthorne, Melville, Faulkner, Eudora Welty, and Richard Wright and edited the journals of Charles W. Chestnut. Author of *The Good of this Place: Values and Challenges in College Education*.

### Brian D. Joseph

Ohio State University, Columbus, OH  
Distinguished University Professor of Linguistics and the Kenneth E. Naylor Professor of South Slavic Linguistics. Leading specialist in the linguistic structure and history of the Greek language. Authority on Balkan linguistics and on general historical linguistics. Known for his monograph on language change through contact in the Balkans. Research spans the Indic, Germanic, Italic, and Anatolian language groups.

### Gustavo Pérez-Firmat

Columbia University, New York, NY  
David Feinson Professor of Humanities. Poet, critic, and novelist. Has written books on Spanish, Latin American, and Latino literature and culture, among them *Idle Fictions*, *The Cuban Condition*, *Life on the Hyphen*, and *Tongue Ties*. Author of the memoir *Next Year in Cuba* and several volumes of poetry.

### Janet Breckenridge Pierrehumbert

Northwestern University,  
Evanston, IL

Professor of Linguistics. Work combines computational and experimental methods to investigate language sound structure. Devised a model of intonation that has been influential in theoretical linguistics, phonetics, speech technology, and psycholinguistics. One of the founders of laboratory phonology. Current research explores how phonological categories and grammars are formed in individuals and populations.

### William H. Pritchard

Amherst College, Amherst, MA

Henry Clay Folger Professor of English. Author of numerous books and essays, including *Uplike: America's Man of Letters*, *Randall Jarrell: A Literary Life*, and *Frost: A Literary Life Reconsidered*.

## Section 4: Literature (Fiction, Poetry, Short Stories, Nonfiction, Playwriting, Screenwriting)

### Ann Beattie

University of Virginia,  
Charlottesville, VA

Novelist and short story writer. Edgar Allen Poe Professor of Creative Writing. Has written seven novels, including *Chilly Scenes of Winter* and *Picturing Will*, and seven collections of short stories. Recipient of an award for excellence from the American Academy and Institute of Arts and Letters.

### Francine du Plessix Gray

Warren, CT

Novelist and biographer. Author of *Rage and Fire: A Life of Louise Colet*, *Lovers and Tyrants*, *Soviet*

*Women: Walking the Tightrope*, a recent biography of Simone Weil, and *At Home with the Marquis de Sade*, which was a finalist for the Pulitzer Prize. Regular contributor to *The New Yorker*.

### Sharon Olds

New York University, New York, NY  
Poet and Professor of English. Author of numerous collections of poetry. Winner of the National Book Critic's Circle Award for *The Dead and the Living*. New York State Poet. Established the Writing Program at Goldwater Hospital, which brings young poets into the hospital to help severely disabled patients in their writing.

### Carl Phillips

Washington University in St. Louis,  
St. Louis, MO

Poet. Professor of English and African and Afro-American Studies. Author of seven books of poetry. Recipient of the Kingsley Tufts Award, a Guggenheim Fellowship, and an Award in Literature from the American Academy of Arts and Letters. Translated Sophocles' *Philoctetes* and wrote a book of essays on the art of poetry.

## Section 5: Visual and Performing Arts – Criticism and Practice

### John Baldessari

University of California,  
Los Angeles, CA

Professor of Art. Conceptual artist who invented a new approach to photography. Uses the latest techniques to create collages juxtaposing photographs, words, and colors to spark new associations. Known for work with images taken from old Hollywood black-and-white movie stills.

### Paul Franklin Berliner

Northwestern University,  
Evanston, IL

Professor of Ethnomusicology. Research revealed the rigors of improvisation within the oral traditions of Zimbabwean mbira music and American jazz. Interprets the impact of war on cultural legacies in Zimbabwe by contextualizing processes of music learning, transmission, and

innovation in relation to religious and sociopolitical life in Zimbabwe.

### John Corigliano

The Juilliard School, New York, NY

Composer and Professor of Composition. Known for his opera *The Ghosts of Versailles* and two symphonies: *New Grove's*, a "memorial to the victims of AIDS," and the *Symphony No. 2*. Winner of the 2001 Pulitzer Prize in Music.

### Mario Davidovsky

Harvard University, Cambridge, MA

Composer and Fanny P. Mason Professor of Music Emeritus. Has been a central force in the development of electronic music in this country. Working with Milton Babbitt at the Columbia-Princeton Electronic Music Center, developed many of the techniques later adopted by generations of younger composers. Has written extensively for conventional instruments.

### Brice Marden

New York, NY

Visual Artist. Leading American minimalist abstractionist creating monochromatic works of art. Investigates the subtle harmonies and optical effects obtained by juxtaposing broad areas of similar hues with different values of light and dark. In the late 1980s effected an abrupt change, incorporating Chinese cultural and artistic influences: calligraphy, taoism, scholars' rocks, and poetry. Continues to work in this complex painterly yet linear mode.

### Ed Ruscha

Los Angeles, CA

Painter, printmaker, creator of books, and filmmaker. Associated with the Pop Art movement. Figure in contemporary American art. Has been exhibited internationally for three decades and is represented in major museum collections throughout the world.

### Judith Tick

Northeastern University, Boston, MA

Matthews Distinguished University Professor. Musicologist, pioneer in the study of women and music, and innovator in the field of musical biography. Associate editor of the *Musical Quarterly*.

Work ranges across historical periods, theoretical frameworks, and artistic styles.

### Joan Tower

*Bard College,  
Annandale-on-Hudson, NY*

Composer and Asher Edelman Professor of Music. Composed orchestral and chamber music. Founded the Da Capo Chamber Players (received the Naumburg Award for Chamber Music in 1973). Composer-in-residence with the Saint Louis Symphony (1985–1987).

### James Turrell

*Flagstaff, AZ*

Visual artist. His created spaces isolate light, giving it form, depth, and mass. Work suggests a painterly sensibility in three dimensions, while commanding an investigation of the act of seeing. Recipient of Guggenheim and MacArthur Fellowships.

### Mary Alice Zimmerman

*Northwestern University,  
Evanston, IL*

Professor of Performance Studies. Writer and director known for adapting classical texts to the stage. Winner of a MacArthur Fellowship and a 2002 Tony Award for Direction. Works include *Metamorphoses*, *The Odyssey*, *The Notebooks of Leonardo da Vinci*, *Journey to the West*, and *The Arabian Nights*.

### Ellen Taaffe Zwilich

*Florida State University,  
Tallahassee, FL*

Composer and Francis Eppes Professor of Music. Won the Pulitzer Prize in 1983 for *Symphony No. 1*. Composed three other symphonies, concertos, and music for chamber ensembles. Held the first Composer's Chair awarded by Carnegie Hall.

### Lucian Freud (FHM)

*London, United Kingdom*

Painter. Britain's best-known contemporary portrait painter. Specializes in portraits and nudes, often observed in arresting close-up.

### Anselm Kiefer (FHM)

*Barjac, France*

Painter. Internationally celebrated for imposing operatic works

dealing with the historical, mythological, and literary themes that animate postwar German culture. Work balances the dual purposes of visually powerful imagery and intellectually critical analysis.

### Gerhard Richter (FHM)

*Staatliche Kunstakademie  
Düsseldorf, Düsseldorf, Germany*

Professor of Art. Conceptual painter who is considered a master of deconstruction of the formal conventions of painting. Has mastered a diversity of genres, including gestural abstraction, landscape, portraiture, and photo-based painting.

## Class V: Public Affairs, Business, and Administration

### Section I: Public Affairs, Journalism, and Communications

#### Loren Frank Ghiglione

*Northwestern University,  
Evanston, IL*

Dean, Medill School of Journalism. Has directed two other journalism programs, owned and operated New England newspapers, and served as president of the American Society of Newspaper Editors and as a Pulitzer Prize juror. Wrote or edited six books on journalism.

#### Richard C. Holbrooke

*Perseus, LLC, New York, NY*

Vice Chairman. Served in the Kennedy, Johnson, Carter, and Clinton administrations in many roles, including U.S. Ambassador to Germany, Assistant Secretary of State for Europe, American negotiator for the Dayton Accords, U.S. Ambassador to the United Nations, and special envoy to Kosovo. Author of *To End a War*.

#### Norman Jay Ornstein

*American Enterprise Institute,  
Washington, D.C.*

Resident Scholar. Illuminated the complexities of policy making in Washington, through numerous books, research studies, and commentaries for national television. Regular commentator

for PBS News. Senior Counselor to the Continuity of Government Commission. Convener of the Campaign Finance Reform Working Group. Coauthor of *Vital Statistics on Congress*.

#### Paul Spyros Sarbanes

*United States Senate,  
Washington, D.C.*

U.S. Senator. Democratic senior Senator from Maryland. Won reelection in 2000 to an unprecedented fifth term. Serves as the Ranking Member of the Senate Banking, Housing, and Urban Affairs Committee and as a senior member of the Foreign Relations, Budget, and Joint Economic Committees. Author of the Sarbanes-Oxley Act to set standards for accounting and corporate responsibility.

#### Timothy Endicott Wirth

*United Nations Foundation,  
Washington, D.C.*

President. As Congressman, Senator, Under Secretary of State, and President of the United Nations Foundation, played a role in the formulation and enactment of policies to address the problems posed by population growth, climate change, loss of wilderness, and resource mismanagement.

### Section 2: Business, Corporate, and Philanthropic Leadership (Private Sector)

#### Leonore Annenberg

*Annenberg Foundation, Radnor, PA*

President, Chair, and Sole Director. Associated with a diverse group of charitable, cultural, and educational institutions, including the Annenberg Schools for Communication. Trustee emeritus, Acquisitions Committee, Metropolitan Museum of Art; Trustee, Philadelphia Museum of Art; Managing Director, Metropolitan Opera. Recipient of the Pat Nixon Ambassador of Goodwill Award. Awarded an honorary Commander of the Most Excellent Order of the British Empire by Queen Elizabeth II in recognition of her contribution to the preservation of important British cultural and educational institu-

tions, and her work promoting British-American relations.

#### Henry H. Arnhold

*Arnhold & S. Bleichroeder Holdings, Inc., New York, NY*

Chairman. Serves as President of the Arnhold Foundation, which supports environmental and animal welfare organizations. Board member, New School University and Conservation International. Serves on the American Council on Germany, the Council on Foreign Relations, and the Foreign Policy Association.

#### John Bogle

*Vanguard Group, Valley Forge, PA*

Founder. Pioneered index funds, which implement the central findings of modern portfolio theory. Led the industry in eliminating sales loads and reducing fund expenses. Author of *John Bogle on Investing*, *Common Sense on Mutual Funds*, and *Bogle on Mutual Funds*.

#### Alexander W. Dreyfoos, Jr.

*West Palm Beach, FL*

Retired Chairman and Chief Researcher, Dreyfoos Group. Invented the Video Color Negative Analyzer, which received an Academy Award from the Academy of Motion Picture Arts and Sciences. Founding Chairman of the Raymond F. Kravis Center for the Performing Arts. Lifetime Member of the MIT Corporation and of the Board of the Scripps Research Institute. Founder of the Palm Beach County Council of the Arts.

#### John F. McDonnell

*McDonnell Douglas Corporation,  
St. Louis, MO*

Retired Chairman of the Board. Served as CEO from 1988–1994. Retired when McDonnell Douglas merged with Boeing in 1997. Director of Boeing. Chairman of the Board and longtime Trustee of Washington University in St. Louis.

#### Gerald Rosenfeld

*Rothschild North America,  
New York, NY*

CEO. Leading investment banker. Key investment banking advisory responsibilities in the industrial and technology sectors. Has shown a strong commitment to

corporate responsibility. Teaches finance at New York University. Member of the NYU Board of Overseers and of the Executive Committee of the Jewish Theological Seminary.

### **Robert Gregg Stone, Jr.**

*Kirby Corporation, New York, NY*  
Chairman Emeritus. Numerous directorships in business, including the chairmanship of West India Shipping Company, General Energy Company, and the Kirby Corporation. Served for twenty-seven years as a member of the Harvard Corporation (including Senior Fellow, 1995 – 2002).

### **Anne Tatlock**

*Fiduciary Trust International, New York, NY*  
Chairman and CEO of Fiduciary Trust and Vice Chairman and Board Director for Franklin Resources, Fiduciary Trust's parent company. Board member of Merck and Fortune Brands. Trusteeships include American Ballet Theater, Conference Board, Cultural Institutions Retirement System, Howard Hughes Medical Institute, Mayo Foundation, Andrew Mellon Foundation (Chairman, 2003 – ), Teagle Foundation, and Vassar College.

### **Preston Robert Tisch**

*Loews Corporation, New York, NY*  
Chairman. Chairman and Co-CEO of a leading NFL football franchise. Distinguished record of public service. Served as U.S. Postmaster General and chaired the New York Convention and Visitors Bureau and the New York City Partnership. Founder and Chairman of Take the Field, an organization that rebuilds public high-school athletic fields in New York City.

### **Peter V. Ueberroth**

*Contrarian Group, Newport Beach, CA*  
Managing Director. Member of the board of directors of the Coca-Cola Company, the Hilton Hotels Corporation, and the Irvine Company. Served as Commissioner of Major League Baseball and as President of the Los Angeles Olympic Organizing Committee responsible for staging the 1984 Olympic Games.

### **Paul Zuckerman (FHM)**

*Zuckerman & Associates LLC, London, United Kingdom*  
Chairman. Also serves as Deputy Chairman of ICAP plc, and as Non-Executive Director of a number of other companies. Formerly an investment banker with Caspian Securities and S. G. Warburg. Treasurer of the International Women's Health Coalition (New York) and the National Art Collection Fund (United Kingdom), and Chairman of the William Walton Trust.

## **Section 3: Educational, Scientific, Cultural, and Philanthropic Administration (Nonprofit Sector)**

### **Leslie Cohen Berlowitz**

*American Academy of Arts and Sciences, Cambridge, Massachusetts*  
Executive Officer. Formerly Vice President for Academic Advancement at New York University. She serves on numerous educational and arts boards.

### **Carol T. Christ**

*Smith College, Northampton, Massachusetts*  
President. Previously Provost and Vice Chancellor at Berkeley. Credited with building top-rated departments. Scholar of nineteenth-century English literature.

### **Philippe L. de Montebello**

*Metropolitan Museum of Art, New York, New York*  
Director. Has led the Metropolitan Museum of Art for over twenty-four years. Presided over the expansion of the museum's permanent collection. Trustee of the New York University Institute of Fine Arts and the American Federation of the Arts. Honored with the Chevalier de la Legion d'Honneur in 1991 and the Spanish Institute Gold Medal Award.

### **Werner Leonard Gundersheimer**

*Folger Shakespeare Library, Washington, D.C.*  
Director Emeritus. Distinguished scholar and administrator. Authored publications in the field of Renaissance studies and served as professor of history (and de-

partment chair) at the University of Pennsylvania before assuming the directorship of the Folger Shakespeare Library, a post he held for eighteen years.

### **Frances Degen Horowitz**

*City University of New York, New York, NY*  
President of the Graduate School and University Center. Developed a new campus as a significant urban hub of scholarship, research, and public discourse. Recognized educational leader and developmental psychologist who serves in numerous scientific, educational, and civic capacities. Has worked to bridge academic and public interests locally and nationally.

### **Curtis W. Meadows, Jr.**

*University of Texas at Austin, Austin, Texas*  
Founding Director, RGK Center for Philanthropy and Community Service, and faculty member of the Lyndon B. Johnson School of Public Affairs. Served for eighteen years as President, CEO, and Director of the Meadows Foundation of Texas. Held leadership positions with more than sixty charitable and community organizations. Counsel to the law firm of Thompson and Knight, LLP.

### **C. D. Mote, Jr.**

*University of Maryland, College Park, MD*  
President and Glenn L. Martin Institute Professor of Engineering. Advocate for students and mentorship and for university partnerships with federal laboratories and industry. Former Vice Chancellor and FANUC Chair in Mechanical Systems, University of California, Berkeley. Specialties include dynamics and stability of gyroscopic systems and biomechanics.

### **William B. Quandt**

*University of Virginia, Charlottesville, VA*  
Edward R. Stettinius Professor of Politics. Former Vice Provost for International Affairs. Leading scholar of the Arab-Israeli peace process. Active participant, as a member of the National Security Council staff, in negotiations leading to the Egyptian-Israeli peace treaty. Senior Fellow at the Brookings Institution.

### **Gerald Schoenfeld**

*The Shubert Organization and The Shubert Foundation, New York, NY*  
Chairman. Played a pivotal role in revitalizing the operation and productions of live-performance theaters in many U.S. cities. Advanced community development and civic affairs in New York City and helped lead the effort to renew and improve Times Square and the surrounding area.

### **Patty Stonesifer**

*Bill & Melinda Gates Foundation, Seattle, Washington*  
President and Co-Chair. Leads the foundation in its efforts to improve health and learning around the world. Chairs the executive committee of the Vaccine Fund and sits on the boards of Amazon.com and Viacom.

### **Guillermo Jaim Etcheverry (FHM)**

*University of Buenos Aires, Buenos Aires, Argentina*  
President. Heads one of the largest institutions of higher learning in Latin America. Neurobiologist, educator, and academic leader. Proposals for educational reform are reinvigorating the Argentine educational system.

### **Ho-Wang Lee (FHM)**

*National Academy of Sciences, Seoul, Republic of Korea*  
President. Discovered the Hantaan and Seoul viruses, the etiologic agents of Hemorrhagic fever with renal syndrome (HFRS), in 1976 – 1981. Identified reservoir hosts, the mode of virus transmission, and developed an effective vaccine against HFRS. Contributed to the prevention of hantaviral diseases.

### **Manuel Martínez-Maldonado (FHM)**

*Ponce School of Medicine, Ponce, Puerto Rico*  
President and Dean. Noted scientist, physician, scholar, and public servant. Developed student and residency training programs and curricula, fostered a more equitable policy of organ sharing in the United States, and promoted public-health initiatives, medical education, and research in Latin America.