

**EDUCATION**

- Ph.D. in Biophysics, University of California, Berkeley, September 1972, A. Katchalsky, advisor  
Visiting Student, Polymer Department, Weizmann Institute of Science, Rehovot, Israel, A. Katchalsky, advisor, April 1969 to January 1970  
B. S. in Electrical Engineering, M.I.T., Cambridge, Mass., September 1967  
B. S. in Life Sciences, M.I.T., Cambridge, Mass., June 1967

**CURRENT POSITIONS**

- SENIOR FELLOW, Theoretical Biology and Biophysics Group, MS-K710, University of California, Los Alamos National Laboratory, Los Alamos, New Mexico 87545. January 2002 to present. (505) 667-6829, (505) 665-3493 (FAX), asp@lanl.gov  
EXTERNAL PROFESSOR, Santa Fe Institute, July 2003 to June, 2015  
ADJUNCT PROFESSOR OF BIOINFORMATICS, Boston University, February 2003 to present.  
ADJUNCT PROFESSOR OF BIOLOGY, University of New Mexico, Albuquerque, April 2003 to present.  
ADJUNCT PROFESSOR OF BIostatISTICS AND COMPUTATIONAL BIOLOGY, University of Rochester, June 2005 to present.

**EMPLOYMENT**

- VISITING MILLER PROFESSOR, University of California, Berkeley, March-April 2004  
LABORATORY FELLOW, Theoretical Biology and Biophysics Group, University of California, Los Alamos Los Alamos, New Mexico 87545. June 1991 to January 2002.  
GROUP LEADER, Theoretical Biology and Biophysics Group, University of California, Los Alamos National Laboratory, Los Alamos, New Mexico 87545. September 1995 to February 2001.  
EXTERNAL PROFESSOR, Santa Fe Institute, Santa Fe, New Mexico, January 1989 to July 2002.  
STAFF MEMBER, Theoretical Biology and Biophysics Group, University of California, Los Alamos National Laboratory, Los Alamos, New Mexico 87545. June 1974 to May 1991.  
VISITING PROFESSOR OF PHYSICS, University of Paris VII, May – June 1992.  
VISITING PROFESSOR OF PHYSICS, Laboratory of Statistical Physics, Ecole Normale Supérieure, Paris. July 1990.  
VISITING SCIENTIST, Centre for Mathematical Biology, Mathematics Institute, Oxford University, Oxford, England, June–July 1986.  
ASSISTANT PROFESSOR OF MEDICAL SCIENCE, Division of Biology and Medicine, Lefschetz Center for Dynamical Systems, Brown University, Providence, Rhode Island 02912. July 1978 to September 1980.  
RESEARCH ASSOCIATE and POSTDOCTORAL FELLOW, Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota 55455. June 1973 to June 1974.  
ACTING ASSISTANT PROFESSOR, Division of Medical Physics, University of California, Berkeley. January 1973 to June 1973.

**RESEARCH INTERESTS**

Theoretical immunology and the application of tools from mathematics and physics to problems in immunology, virology, and cell and molecular biology.

**HONORS**

Fellow, Society for Industrial and Applied Mathematics (SIAM), April, 2009 - present

Fellow, American Association for the Advancement of Science (AAAS), October, 2006 - present  
 Eijkman Lecturer, University of Utrecht School of Medicine, Netherlands, June 2005  
 Visiting Miller Professor, UC Berkeley, March–April 2004  
 19th Annual Leon Schiff Lecturer, Univ. of Cincinnati College of Medicine, October, 2003  
 NIH MERIT Award, July 2002  
 17th Annual Stephen I. Winter Memorial Hepatology Lecturer, University of Illinois, Chicago, March 2001  
 Fellow, American Academy of Arts and Sciences, April, 1999 - present  
 Member, National Research Council Board on Mathematical Sciences, June 1997 - June 2002  
 Advisor, National Research Council, Division on Engineering and Physical Sciences (DEPS), July 2001-  
 December 2002  
 Vice-Chair, Society of Industrial and Applied Mathematics (SIAM) Activity Group on Life Sciences, January  
 2000 - December 2002  
 Second Annual Stanislaw Ulam Memorial Lecturer, Santa Fe, September 1995  
 Vice-President and Past-President, Society for Mathematical Biology, July 1993–September 1994  
 President, Society for Mathematical Biology, August 1991– July 1993  
 Los Alamos National Laboratory Fellow, May 1991 – present  
 Vice-President and President-Elect, Society for Mathematical Biology, January 1991– August 1991  
 N.I.H. Research Career Development Award, September 1979 to August 1984  
 N.I.H. Postdoctoral Research Fellowship, June 1973 to June 1974  
 N.S.F. Graduate Traineeship, October 1968 to September 1972  
 N.I.H. Biophysics Traineeship, September 1967 to September 1968  
 Bausch Lomb Medal for Excellence in Biology  
 Member of Phi Lambda Upsilon (1966, MIT) and Sigma Xi (1966, MIT; 1979, Brown University)

## JOURNAL EDITORSHIPS

Advisory Editor, *Journal of Mathematical Biology*, 1977–1999  
 Editorial Board, *Lecture Notes in Biomathematics*, 1978–1994  
 Editorial Board, *Mathematical Biosciences*, 1981–2005  
 Book Review Editor, *Mathematical Biosciences*, 1982– 1988  
 Editorial Advisor, *CRC Press*, 1982–1992  
 Associate Editor, *Mathematical Medicine and Biology: A Journal of the IMA*, 1983–present  
 Associate Editor, *Bulletin of Mathematical Biology*, 1977–1986, 2002 – 2009  
 Advisory Editor, *Journal of Theoretical Biology*, 1985–1988  
 Editorial Board, Springer–Verlag *Textbooks in Biomathematics*, 1986–1990  
 Editorial Board, *Journal of Theoretical Biology*, 1988–2009  
 Editorial Board, Santa Fe Institute–Addison Wesley *Studies in the Sciences of Complexity*, 1990 – 1998  
 Editorial Board, *Complexity*, 1993 – present  
 Editorial Board, *Bifurcation and Chaos*, 1998 – present  
 Editorial Board, *Journal of Acquired Immunodeficiency Syndromes (JAIDS)*, 2000 – present  
 Editorial Board, *Journal of Computational Biology*, 2001 – present  
 Editorial Board, *Mathematical Biosciences and Engineering*, 2004 – present  
 Editorial Board, *Optimal Control Applications and Methods*, 2005 – 2007  
 Editorial Board, *J. Biological Dynamics*, 2006 – present  
 Editorial Board, *Immunology & Cell Biology*, 2007 – present

## PROFESSIONAL SOCIETIES

American Association of Immunologists (AAI)

American Society for Microbiology (ASM)  
Society of Industrial and Applied Mathematics (SIAM)  
American Association for the Study of Liver Diseases (AASLD)  
American Gastroenterological Association (AGA)  
Institute of Electrical and Electronics Engineers (IEEE)  
Society for Mathematical Biology (SMB)

### PROFESSIONAL ACTIVITIES

Member, NIH Special Study Section, 1980-1981, 1983, 1987-1989, 1991-1992, 2001  
Chairman, NIH Special Study Section, 1989  
Member, NIH Site Review Panel, 1988, 1989, 1990, 2001  
Organizer, Workshop on Physical Aspects of Cellular Recognition and Response, Aspen, Colorado, July 1981  
Board of Directors, Society of Mathematical Biology, July 1982–June 1987  
Co-chairman, Workshop on Theoretical Models of the Immune Response, Vth International Congress of Immunology, Kyoto, Japan, August 1983  
Chairman, Gordon Research Conference on Theoretical Biology and Biomathematics, June 1984  
Member, Joint AMS-SIAM Committee on Mathematics in the Life Sciences, January 1984–December 1987  
Los Alamos National Laboratory Theoretical Division Colloquium Committee, September 1984–August 1986  
Chairman, Publications Board, Society of Mathematical Biology, April 1985–August, 1991  
Chairman, Nominations Committee, Society of Mathematical Biology, April 1985–December 1989  
Member, Los Alamos National Laboratory Center for Nonlinear Studies, Internal Advisory Committee, January 1986 - November 1990.  
Organizer, 7th Annual Center for Nonlinear Studies Conference, Nonlinearity in Biology and Medicine, Los Alamos National Laboratory, May 1987.  
Organizer, Workshop on Theoretical Immunology, Santa Fe Institute, June 1987.  
Member, UC Steering Committee for The Joint Program in Nonlinear Science with NASA Ames, March 1987 - February 1991.  
Member, Santa Fe Institute Science Board, March 1988 - May 2000, July 2001 - June 2007, July 2008 - June 2014  
Organizer, Workshop on Interaction of HIV with the Immune System, Santa Fe Institute, October 1988.  
Co-Organizer, Workshop on Applied Molecular Evolution and the Maturation of the Immune Response, Santa Fe Institute, March 1989.  
Co-Organizer, Workshop on Computer Simulation of Immune Reactions, 7th International Congress of Immunology, West Berlin, July, 1989.  
Member, Program Committee, Mathematical Modeling in Immunology and Medicine, Kiev, USSR, August, 1989  
Steering Committee Member, NSF Workshop on Mathematics and Biology: The Interface, Challenges and Opportunities, Oct. 1989  
Member, Santa Fe Institute Publications Board, January, 1990 - 2001  
Scientific Coordinator, Center for Nonlinear Studies, Los Alamos National Laboratory, November, 1990 – 2000  
Member, Special Appointments Committee, Santa Fe Institute, November, 1990 - 1992.  
Co-Organizer, Workshop on Modeling Self-Reactivity, Keystone Conference, January, 1991  
Vice-President, Society for Mathematical Biology, January 1991 – August, 1991  
Co-organizer, Workshop on Mathematical Modeling in Immunology, ICIAM 91, Washington, D.C., July 1991  
Organizing Committee, Theoretical Immunology 91, Gulbenkian Foundation, Paris, September, 1991  
President-Elect, Society for Mathematical Biology, January 1991 – August, 1991  
Head, Theoretical Immunology Research Program, Santa Fe Institute, March 1988 – present

- Member, American Red Cross Advisory Committee on Reducing the Infectious Potential in Transfused Red Blood Cells, May 1991 – October, 1992
- Chairman, Organizing Committee, Society of Mathematical Biology 1992 Annual Meeting, Berkeley, July, 1992
- Organizer, Mathematical Immunology Workshops I & II, Mathematical Sciences Research Institute, University of California, Berkeley, July–August, 1992
- Co-chairman, Workshop on Immunology Tomorrow, VIII International Congress of Immunology, Budapest, August, 1992
- Member, Scientific Committee, Second European Conference on Mathematics Applied to Biology and Medicine, Lyon, France, December, 1993
- Member, Los Alamos National Laboratory Bioscience Internal Advisory Committee
- Organizing Committee, Searching Sequence Space: Rational and Irrational Approaches to Sequence Design, Santa Fe, April, 1994
- Member, Board of Governors, Institute for Mathematics and its Applications (IMA), Minneapolis, MN, January, 1995 – December, 1997
- Organizer, Theoretical Immunology Workshop, Keystone Symposium on Control and Manipulation of the Immune Response, Taos, March, 1995.
- Organizing Committee, Molecular Diversity Workshop, Los Alamos National Laboratory, August, 1995.
- Member, NSF Advisory Panel on Modeling Biological Systems, March, 1996
- Organizer, Year in Mathematical Biology, Institute for Mathematics and its Applications, Minneapolis, 1998-1999
- Co-organizer, Workshop on Mathematical Modeling in Immunology, Institute for Mathematics and its Applications, Minneapolis, October, 1998
- Co-organizer, Workshop on Dynamics and Control of AIDS, Institute for Mathematics and its Applications, Minneapolis, November, 1998
- Co-organizer, 6th Annual Intl. Discussion Meeting on HIV Dynamics and Evolution, Atlanta, March, 1999
- Co-organizer, Santa Fe Institute Workshop on the Evolutionary Epidemiology of Influenza and Malaria, Santa Fe, January, 2000
- Vice-Chair, Society of Industrial and Applied Mathematics (SIAM) Activity Group on Life Sciences, January, 2000 - December 2002
- Co-organizer, 7th Intl. HIV Dynamics & Evolution Conference, Seattle, April, 2000
- Advisor, James S. McDonnell Foundation Studying Complex Systems Program, 2000/2001
- Member, National Research Council's Bio 2010 Panel on Mathematics and Computer Science, 2001.
- Co-Organizer, National Research Council Board on Mathematical Sciences Workshop, "Dynamical Models of Complex Biological Systems", Washington, DC, April, 2001
- Member Scientific organizing Committee, 8th Annual Intl HIV Dynamics and Evolution Meeting, Paris, April 2001
- Member, Santa Fe Institute Science Board, May, 2001 - June 2007.
- Advisor, National Research Council, Division on Engineering and Physical Sciences (DEPS), July, 2001-December, 2002
- Co-organizer, Hands on Meeting: Modeling Immune Systems, Royal Netherlands Academy of Sciences, Amsterdam, September, 2001.
- Co-organizer, 9th Intl. HIV Dynamics & Evolution Conference, Lake Arrowhead, CA, March, 2002.
- Board of Governors, Mathematical Biosciences Institute, Ohio State University, 7/02–present
- Co-organizer, DIMACS Workshop on the Pathogenesis of Infectious Diseases: Host-Pathogen Interactions, Rutgers University, September, 2002.
- Member, Scientific Committee, HIV DAART 2002 meeting, Naples, FL, Dec. 2002.
- Organizer, Workshop on Immune System Modeling, Kavli Institute, UC Santa Barbara, November, 2003
- Session Chair, Viral & Immune Dynamics, 11th Intl. HIV Dynamics & Evolution Conference, Stockholm, April 2004

- Co-Organizer, Session on Theoretical Immunology, Computational and Mathematical Population Dynamics Conference, Trento, Italy, June 2004
- Co-Organizer, Workshop on Biomarkers in HIV and Cancer, Mathematical Biosciences Institute, Columbus, April 2005
- Member, NIGMS MIDAS (Modeling Infectious Disease Agents Study) Scientific Steering Committee, March 2005 to February 2008
- Co-Organizer, DIMACS Workshop on the Epidemiology and Evolution of Influenza A, Rutgers University, January 2006
- Session Chair, 13th Intl. HIV Dynamics and Evolution, Woods Hole, MA, April 2006
- Co-organizer, Santa Fe Institute Workshop on Degeneracy and Complexity in the Immune System, Santa Fe, July 2006
- Session Co-chair, BIOMAT2006, Manaus, Brazil, November, 2006
- Guest Editor, *Proc. Natl. Acad. Sci. USA*, 2006
- Session Co-chair, 14th Intl. HIV Dynamics & Evolution Meeting, Segovia, Spain, April 2007
- Member, SIAM Committee on Science Policy, January 2005-December 2010
- Member, LANL Director's Colloquium Advisory Board, January 2006- December 2008
- Session Co-chair, 15th Intl. HIV Dynamics & Evolution Meeting, Santa Fe, NM, April 2008
- Session Co-chair, 4th Annual CHAVI Meeting, Durham, NC, Sept. 2008
- Organizing Committee, 2010 SIAM Conference on the Life Sciences
- Member, External Advisory Committee, Univ. of Rochester Developmental Center for AIDS Research (DCAR), 2009-
- Member, Scientific Committee, HEP DART, Big Island, Hawaii, December 2009
- Co-organizer, Workshop on Systems Approaches to Immunology, Santa Fe, NM, January 2010
- Co-organizer, Santa Fe Workshop on Viral Dynamics and the Innate Immune Response to Influenza and HCV, Santa Fe, August 2010
- Member, Scientific Committee, HIV DART 2010, Los Cabos, Mexico, December 2010
- Member, Scientific Advisory Board, HIV Immune Network Team Program Project, Salk institute, May 2011
- Member, Scientific Advisory Committee, Burroughs Wellcome Fund's Interfaces in Science program, August 2011 -
- Member, Board of Trustees, Mathematical Biosciences Institute, Ohio State University, January 2012 - December 2014
- Co-organizer, 2nd Workshop on Systems Approaches to Immunology, Santa Fe, NM, January 2012
- Member, International Scientific Program Committee, BIOCOMP2012, Vietre sul Mare, Italy

## BIBLIOGRAPHIC LISTINGS

- The Contemporary Who's Who*, 2002/2003/2008 ed.
- Who's Who in Frontiers of Science and Technology*, 1st ed.
- Who's Who in the East*, 18th ed.
- Who's Who in the West*, 18th, 19th, 20th, 21st, 22nd, eds.
- Who's Who of Emerging Leaders in America*, 2nd, 3rd, 4th eds.
- Men of Achievement*, 8th, 9th eds.
- Dictionary of International Biography*, Vol. XVII
- American Men and Women of Science*

## INVITED LECTURES

- Katchalsky Memorial Symposium, 18th Annual Biophysical Society Meeting, Minneapolis, 1974
- Aspen Center for Physics, Aspen, Colorado, July 1975
- Department of Pathology, Harvard Medical School, October 1975

Department of Biophysics and Theoretical Biology, University of Chicago, April 1976  
Department of Mathematics, Rockefeller University, December 1976  
Gordon Research Conference on Theoretical Biology and Biomathematics, June 1977  
Weizmann Institute of Science, Rehovot, Israel, December 1976-January 1977  
Department of Mathematics, Rensselaer Polytechnic Institute, Troy, NY, August 1977  
Conference on Deterministic Differential Equations and Stochastic Process Models for Biological Systems, Taos, New Mexico, August 1977  
U.S.–Italy Seminar on “Recent Advances in Variable–Structure System Theory, Biology, and Socioeconomics,” Taormina, Sicily, August 1977  
Division of Biology and Medicine, Brown University, October 1977  
Department of Biology, University of California, San Diego, February 1978  
12th Annual AMS–SIAM Symp. on “Some Mathematical Questions in Biology.” Washington, D.C., February 1978  
EMBO course on Mathematical Models in Biology, Weizmann Institute, Rehovot, Israel, March 1978  
Department of Physics, Twente University, Enschede, The Netherlands, April 1978  
Department of Mathematics, University of California, Davis, April 1978  
Gordon Research Conference on Theoretical Biology and Biomathematics, June 1978  
The Cambridge Seminar on System Theory and Its Mathematical, Physical and Biological Ramifications, Harvard University, December 1978  
Institute for Theoretical Physics, University of Amsterdam, September 1979  
Faculte des Sciences, Universite Libre de Bruxelles, October 1979  
Symposium: “Theoretical Immunology,” Society for Mathematical Biology, 64th Annual FASEB meeting, Anaheim, CA, April 1980  
Courant Institute of Mathematical Sciences, April 1981  
National Institutes of Health, April 1981  
Aspen Center for Physics, July 1981  
Department of Mathematics, University of New Mexico, September 1981  
Department of Mathematics, University of Rome, September–October 1982  
Istituto di Automatica, University of Rome, October 1982  
Department of Applied Mathematics, California Institute of Technology, January 1983  
Department of Microbiology and Immunology, UCLA, February 1983  
Department of Mathematics, University of Utah, April 1983  
Center for Polymer Studies, Boston University, April 1983  
Second Field Workshop in Mathematical Biology, Canyonlands, Utah, June 1983  
Vth International Congress of Immunology, Kyoto, Japan, August 1983  
Department of Mathematics, University of Texas, El Paso, December, 1983  
Department of Mathematics, University of California, Davis, January, 1984  
International Topical Conference on the Kinetics of Aggregation and Gelation, Athens, Georgia, April 1984  
U.S.–France Workshop on the Physics and Chemistry of Gelation, Sofia Antipolis, France, April 1984  
New Zealand Society for Immunology, Christchurch, New Zealand, May 1984  
Centre for Computing and Biometrics, Lincoln College, Canterbury, New Zealand, May 1984  
Symposium Mathematics and Computers in Biomedical Applications, N.I.H., Bethesda, MD, August 1984  
Laboratory of Mathematical Biology, N.I.H., Bethesda, MD, August 1984  
Aspen Center for Physics, August 1985  
American Institute for Chemical Engineering Annual Meeting, Chicago, November 1985  
Statistical Laboratory, University of Cambridge, England, May 1986  
Mathematical Institute, University of Oxford, England, May 1986

Pasteur Institute, Paris, June 1986  
Gordon Conference on Theoretical Biology and Biomathematics, Tilton, NH, June 1986  
Donner Laboratory, Division of Biology and Medicine, Lawrence Berkeley Laboratory, Berkeley, CA, February 1986.  
Mathematics Department, Boston University, April 1986.  
Biology Department, Stanford University, February 1987.  
Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, November 1987.  
Department of Physics, University of British Columbia, Vancouver, February 1988.  
Salk Institute for Biological Science, La Jolla, CA, March 1988.  
NATO Advanced Research Workshop, Knokke-Zoute, Belgium, September 1988.  
Santa Fe Institute, Santa Fe, NM, September 1988.  
Mathematics Department and Medical Center, Duke University, November 1988.  
Bioengineering, University of California, San Diego, February 1989.  
Department of Chemical Engineering, University of Pennsylvania, April 1989.  
International Workshop on Immune Network Theory, Perugia, Italy, May 1989.  
Santa Fe Institute Summer School on Complex Systems, June, 1989  
VII International Congress of Immunology, W. Berlin, July, 1989.  
Department of Medicine, Dartmouth Medical School, Hanover, NH, August, 1989.  
Department of Immunobiology, Pasteur Institute, Paris, October, 1989  
Department of Somatic Cell Genetics, Pasteur Institute, Paris, October, 1989  
Department of Physics, Ecole Normale Supérieure, Paris, October, 1989  
Office of Health and Environmental Research, US Dept. of Energy, October, 1989  
Dynamics Days, Austin, TX, January, 1990  
Theoretical Biology Seminar, Weizmann Institute, Israel, March, 1990  
MacArthur Foundation Workshop, "Calculating Parasitic Diseases", Weizmann Institute, Israel, March, 1990  
Department of Microbiology and Immunology, UCLA, Los Angeles, April, 1990  
American Mathematical Society/Society for Industrial and Applied Mathematics Workshop on Mathematical Biology, Albuquerque, April, 1990  
Laboratory of Statistical Physics, Ecole Normal Supérieure, Paris, July, 1990  
Department of Immunobiology, Pasteur Institute, July, 1990  
Department of Molecular and Cell Biology, University of California, Berkeley, December, 1990  
Keystone Conference, "Self-Reactivity and its Regulation", Keystone, CO, January, 1991  
Institute for Scientific Interchange, Turin, Italy, May, 1991  
Physics and Theoretical Division Colloquium, Los Alamos National Laboratory, June, 1991  
Los Alamos Fellows Colloquium, June, 1991  
International Conference on Industrial and Applied Mathematics, Washington, D.C., July 1991  
Division of Computer Research, N.I.H., July, 1991  
Society for Mathematical Biology Annual Meeting, Santa Fe, NM, August, 1991  
Summeruniversity of Southern Stockholm, August, 1991  
NATO Advanced Study Institute on T Lymphocytes: Structure, Functions, Choices, Sardinia, September, 1991  
NATO Advanced Research Workshop on Theoretical Immunology, Paris, September, 1991  
Conference on the Application of Non-linear Dynamics to the Immune System and Immune Regulation in Health and Disease, UCLA, Lake Arrowhead, October, 1991  
Department of Biological Sciences, Stanford University, November, 1991  
Pittsburgh Cancer Center, Pittsburgh, March, 1992  
Neural Networks for Computing, Snowbird, UT, April, 1992

Department of Immunobiology, Pasteur Institute, June, 1992  
Department of Physics, Ecole Normale Supérieure, Paris, June, 1992  
Santa Fe Institute Integrative Themes Meeting, Santa Fe, July, 1992  
Theoretical Biology and Biophysics Group, Los Alamos National Laboratory, July, 1992  
Mathematical Sciences Research Institute, University of California, Berkeley, August, 1992  
Dynamics of Complex Systems in the Biosciences: Theoretical Immunology, Centre International Research  
Mathématique, Marseilles, April, 1993  
Pasteur Institute, Paris, April, 1993  
Chaos and Complexity, Blois, France, June, 1993  
Department of Theoretical Biology, Utrecht University, Utrecht, June, 1993  
Eigen's 29th Winter Symposium on Molecules, Information and Memory, Klosters, Switzerland, January,  
1994  
Proctor and Gamble Pharmaceuticals, February, 1994  
Third Annual Santa Fe Institute Science Board Symposium, March, 1994  
Department of Bioengineering, Boston University, March, 1994  
Weizmann Institute of Science, Rehovot, Israel, April, 1994  
Society of Industrial and Applied Mathematics (SIAM) Annual Meeting, San Diego, CA, July, 1994  
Antibody Workshop, Cambridge, England, August, 1994  
Lupus Foundation of America Symposium, Minneapolis, September, 1994  
Department of Statistics, Rice University, November, 1994  
Aaron Diamond AIDS Research Center, New York, November, 1994  
AAAS Annual Meeting, Atlanta, February, 1995  
Department of Immunology and Microbiology, University of Maryland, February, 1995  
Keystone Symposium, Taos, NM, March, 1995  
Department of Immunology, University of Birmingham Medical School, Birmingham, England, June, 1995  
Department of Zoology, Oxford University, England, July, 1995  
Plenary speaker, International Conference of Industrial and Applied Mathematics (ICIAM95), Hamburg,  
Germany, July, 1995  
Stanislaw Ulam Memorial Lectures, A series of three public lectures entitled "The Warriors Within: How  
Your Immune System Combats Disease", Santa Fe, Sept., 1995  
Isaac Newton Institute, Cambridge, England, November, 1995  
MIT Club of New Mexico, December, 1995  
AAAS Annual Meeting, Baltimore, February, 1996  
UCLA AIDS Institute, February, 1996  
Dept. of Biostatistics, North Carolina State University, April, 1996  
University of Michigan, Ann Arbor, April, 1996  
Meeting on "Can HIV be eradicated from an infected individual?", Washington, D.C., June, 1996  
Niels Bohr Institute, Copenhagen, August, 1996  
Plenary speaker, Third European Conference on Mathematics Applied to Biology and Medicine, Heidelberg,  
October, 1996  
Plenary speaker, 4th Conference on Retroviruses and Opportunistic Infections, Washington, DC, January,  
1997  
HIV Population Dynamics, Variation and Drug Resistance, Meeting Edinburgh, March, 1997  
Henderly Symposium on AIDS, Northwestern University, April, 1997  
Plenary speaker, 9th Annual Houston Conference on AIDS in America, April, 1997  
Smithsonian Institution, May, 1997  
Plenary speaker, VII Pan American Congress on Infectious Disease, Brazil, May, 1997  
Plenary speaker, Canadian Applied Mathematics Society, Toronto, May, 1997

Pasteur Institute, Paris, June, 1997

Symposium speaker, 13th European Immunology Meeting, Amsterdam, June, 1997

Symposium speaker, 23rd AIDS Clinical Trials Group Meeting, Washington, DC, July, 1997

Plenary speaker, 37th Interscience Conference on Antimicrobial Agents and Chemotherapy, Toronto, September, 1997

Vth International Conf. Current Trends in Chronically Evolving Viral Hepatitis, Lyon, France, October, 1997

Molecular, Cellular, & Physiological Biology Distinguished Lecturer Series, University of Illinois, Champaign-Urbana, December, 1997

Plenary Speaker, Hepatitis C: Leading Edge Scientific and Clinical Advances, Monte Carlo, January, 1998

Cancer Workshop, Cancer Foundation of Santa Barbara, Santa Barbara, CA January, 1998

Dept. Mathematics, Univ. Arizona, Tucson, January, 1998

Symposium speaker, AAAS Annual Meeting, Philadelphia, February, 1998

Physics Department Colloquium, NYU, New York, February, 1998

Cellular and Systemic Reservoirs for HIV Replication under Highly Active Antiretroviral Therapy, Endicott House, MIT, Boston, February, 1998

Mathematics Dept., Univ. Washington, Seattle, April, 1998

Plenary speaker, 10th Annual Houston Conference on AIDS in America, April, 1998 Grand Rounds, Dept. of Medicine, Univ. Washington, Seattle, April, 1998

Physics Dept., Univ. California, San Diego, May, 1998

Plenary Speaker, XV Sitges Conf., Statistical Mechanics of Biocomplexity, Sitges, Spain, June, 1998

Symposium Speaker, European Society of Clinical Virology Meeting, Progress in Clinical Virology IV, Hamburg, September, 1998

Niels Bohr Institute, Copenhagen, September, 1998

Dept. Medicine, University of Illinois, Chicago, November, 1998

Institute for Mathematics and its Applications Public Lecture, University of Minnesota, Minneapolis, November, 1998

NIH Workshop on Research Needs for the Design and Analysis of Surrogate Endpoints in Clinical Trials, Potomac, MD, December, 1998

Speaker, Hepatitis C: A meeting Ground for the Generalist and Specialist", December, 1998

Dept. Mathematics, University New South Wales, Sydney, Australia, March, 1999

Symposium Speaker, 6th Annual Intl. Discussion Meeting on HIV Dynamics and Evolution, Atlanta, March, 1999

Dept. Biology, Emory University, Atlanta, March, 1999

Speaker, NIH-FDA Conference, "Biomarkers and Surrogate Endpoints: Clinical research and Applications", Bethesda, April, 1999

Plenary speaker, 11th Annual Houston Conference on AIDS in America, Houston, April, 1999

Speaker, Research Association of Medical and Biological Organizations (RAMBO), Albuquerque, May, 1999

Lecturer, Workshop on Mathematical Epidemiology, Pacific Institute of Mathematical Sciences, University of British Columbia, Vancouver, July, 1999

Symposium speaker, 8th Intl. Symp. Soc. Chinese Bioscientists in America (SCBA), Hong Kong, August, 1999

Speaker, Great Lakes Regional Center for AIDS Research, September, 1999

Speaker, Excellence in Immunology Seminar Series, Univ. Texas Southwestern Medical Center, Dallas, October, 1999

Postgraduate Course Speaker, Amer. Assoc. for the Study of Liver Diseases, 50th Annual Meeting, Dallas, November, 1999

Speaker, NRC Workshop on Statistical Approaches for the Evaluation of Complex Computer Models, Santa Fe, December, 1999

- Symposium speaker, 3rd Intl. Conf. on Therapies for Viral Hepatitis, Maui, December, 1999
- Speaker, Joint Rockefeller University Institute for Advanced Studies Symposium on Modeling Life Processes, New York, January, 2000
- Speaker, Royal Soc. London Discussion Meeting on The Dynamics of Virus Infections, London, January, 2000
- Speaker, 4th Annual Hilton Head Workshop; Computational Modeling of Biological Systems From Gene to Organ, Hilton Head, SC, February, 2000
- Speaker, U.S.-Japan Cooperative Medical Sciences Program, 12th Joint Meeting of the AIDS Panels, Santa Fe, March, 2000
- Speaker, Strategies for the Management of HIV/HCV Coinfections, Puerto Rico, March, 2000
- Speaker, Year 2000 Harold C. Neu Infectious Diseases Conference, Dallas, May, 2000
- Plenary Speaker, New England Complex Systems Institute, Third Intl. Conf. on Complex Systems, Nashua, NH, May, 2000
- Speaker, 6th Intl. Meeting of the Groupe Francais D'Etudes Moleculaires des Hepatites, Paris, May, 2000
- Dept. Molecular Genetics and Microbiology, Univ. New Mexico, Albuquerque, June, 2000
- Speaker, Infectious Disease Modeling Workshop, MITRE Corp., McLean, VA, September, 2000
- Speaker, Dept. of Physics, University of Pennsylvania, Philadelphia, September, 2000
- Plenary Speaker, First SIAM Conf. on Computational Science and Engineering, Washington, DC, September, 2000
- Speaker, Institute of Pure and Applied Mathematics, UCLA, Expression Array Technologies and Methods Analysis Workshop, October, 2000
- Speaker, From Physics to Biology, Princeton University Dept. of Physics, October, 2000.
- Speaker, Mathematical and Statistical Challenges from Computational Biology, Lake Arrowhead, CA, December, 2000.
- Speaker, American Mathematical Society Short Course on Mathematical Biology, New Orleans, January, 2001
- Speaker, Dept. of Mathematics, Stanford University, June, 2001
- Invited Speaker, 1st International AIDS Society Conf. on HIV Pathogenesis and Treatment, Buenos Aires, July, 2001
- Invited Speaker, Division of Biological Engineering, MIT, Cambridge, MA, October, 2001.
- Invited speaker, HEP DART2001, Frontiers in Drug Development for Viral Hepatitis, Maui, December, 2001.
- Invited speaker, HIV - The Science of a Pandemic, Joint Santa Fe Institute Community Lecture, Los Alamos National Laboratory Frontiers of Science Lecture, Santa Fe, January 2002.
- Invited Speaker, Population Biology and Epidemiology of Influenza A, Princeton Univ., February, 2002.
- First Santa Fe Institute Science Board Lecturer, Santa Fe, February 2002.
- Invited Speaker, Global Perspectives in Infectious Diseases, Santa Fe, April, 2002.
- Invited speaker, BIOCOMP2002, Vietre sul Mare, Italy, June, 2002.
- Invited speaker, DIMACS Workshop on Complexity in Biosystems, Rutgers University, NJ, April, 2002.
- Lecturer, Santa Fe Institute Summer School on Complex Systems, Santa Fe, NM, June, 2002.
- Invited Speaker, DIMACS Workshop on the Pathogenesis of Infectious Diseases: Host-Pathogen Interactions, Rutgers University, September, 2002.
- Invited Lecturer, Center for the Study of Hepatitis C, Weill Medical College of Cornell University NY, September, 2002.
- Invited Speaker, Dept. of Applied Math., Northwestern University, Evanston, IL, October, 2002.
- Invited Speaker, HIV DAART 2002, Naples, FL, December, 2002
- Invited Speaker, Targeting HIV Reservoirs Meeting, Boston, February 2003
- Invited Speaker, Scientific and Clinical Experts Panel Meeting: Peginterferons in HCV, Boston, February 2003.

Invited Speaker and Session Chair, 11th International Symp. on Viral Hepatitis & Liver Diseases, Sydney, Australia, April 2003

Invited Speaker, Latsis Symposium 2003. Evolution, Immunity and Infectious Disease, Zurich, May, 2003

Invited Speaker, 8th GEMHEP Meeting, Coinfections of HIV, HCV, HBV, HDV, Paris, June, 2003

Invited Speaker, NIH Workshop, Mathematical Models of Immunity, Bethesda, MD, June, 2003

Invited Speaker, DIMACS Working Group on Ecology and Evolution of Influenza and Related Viruses, June, 2003

Invited Speaker, Mathematical Biology: From Molecules to Ecosystems: The Legacy of Lee Segel, Banff Canada, July, 2003

Leon Schiff Lecturer, University of Cincinnati School of Medicine, October, 2003

Invited Speaker, Seminars in Clinical Research, Rockefeller University, October, 2003

Invited Speaker, Workshop on Immune System Modeling, Kavli Institute, UC Santa Barbara, November, 2003

Invited Speaker, Dept. Chemical Engineering, Univ. Wisconsin, Madison, December, 2003.

Invited speaker, HEP DART 2003, Viral dynamics of HCV, Kauai, December 2003

Invited speaker, Arizona Days 2004, CNLS, Los Alamos National Laboratory, January 2004

Keynote Lecturer, Hong Kong-Shanghai International Liver Congress 2004, Hong Kong, February 2004

Invited speaker, Grand Rounds, Univ. Calif. San Francisco, April 2004

Invited speaker, La Jolla Institute for Allergy and Immunology, April 2004

Invited speaker, Physics Dept., Ohio State University, Columbus, May 2004

Invited speaker, Math. Biol. Institute, Ohio State University, Columbus, May 2004

Symp. speaker, Amer. Transplant Congress 2004, Boston, May 2004

Plenary speaker, Intl. Conf. Complex Systems, Boston, May 2004

Plenary speaker, Computational and Mathematical Population Dynamics Conference, Trento, Italy, June 2004

Plenary speaker, 2004 SIAM Conf. on the Life Sciences, Portland, July 2004

Seminar speaker, Department of Medicine, Portland VA Medical Center, July 2004

Plenary speaker, Annual Society of Math. Biol. Meeting, Ann Arbor, MI, July 2004

Lecturer, SFI Summer Workshop on Mathematical and Computer Models in Medicine, August 2004

Plenary speaker, Third Intl Conf on Artificial Immune Systems, Catania, Italy, September, 2004

Lecturer, Summer School on Mathematical Modeling in Biology, Gulbenkian Institute, Lisbon, September, 2004

Speaker, Therapies for Viral Hepatitis, Boston, MA, November 2004

Speaker, New Insights into Viral Diseases from Mathematical Modeling of Biological Systems, Cold Spring Harbor Laboratory, December 2004

Seminar speaker, Chemical Engineering, City College of NY, December 2004

Lecturer, Center for Evolutionary and Theoretical Immunology, UNM, Albuquerque, January 2005

Distinguished Lecturer, SAMSI, North Carolina, January 2005

Keynote Speaker, 2nd Intl. Immunoinformatics Symp., Boston University, Boston, March 2005

Symposium Speaker, Tracks in Theoretical Immunology: Footprints followed and left behind, Univ. Utrecht, The Netherlands, March 2005

Seminar Speaker, Biomolecular Sciences & Engineering, Univ. California, Santa Barbara, April 2005

Speaker, Mathematical Biosciences Institute Workshop on HIV Markers, Columbus, April 2005

Visiting Professor Lecturer, Center for Drug Research and Evaluation, FDA, April, 2005

Invited Speaker, Center for AIDS Research, University of Alabama, Birmingham, June, 2005

Invited speaker, Cornell/Rockefeller Symposium on HCV Immunology, New York, June 2005

Invited speaker, Park City Mathematics Institute, Park City, UT, July 2005

Public Lecture, Interdisciplinary Center for the Study of BioComplexity, Notre Dame, South Bend, IN, October 2005

Invited Speaker, Univ of Rochester Center for Immune System Modeling for Biodefense, December 2005

Invited Speaker, Mt. Sinai School of Medicine, January 2006 Plenary speaker, Shanghai-Hong Kong Intl. Liver Congress 2006, Shanghai, March 2006

Distinguished Lecturer, Dept. of Mathematics, Univ. Michigan, Ann Arbor, April 2006

Speaker, Los Alamos Epidemiological Modeling Seminar Series, May 2006

Lecturer, Santa Fe Institute Complex Systems Summer School, Santa Fe, June 2006

Invited Speaker, Optimization in Complex Networks, Los Alamos, NM, June 2006

Invited Speaker, Biodefense Immune Modeling Symp., Univ Rochester, June 2006

Invited Speaker, Santa Fe Institute Workshop on Degeneracy and Complexity in the Immune System, Santa Fe, July 2006

Invited Symp. Speaker, SIAM Annual Conference, Boston, July 2006

Invited speaker, CNLS Annual Conference, Socio-Technical Systems: Bridging the Scales, Los Alamos, August 2006

Invited Speaker, Alfred Hospital, Melbourne, August 2006

Invited Speaker, Walter and Elisa Hall Institute, Melbourne, July 2006

Invited Speaker, HIV & Liver Disease 2006, Jackson, WY, September 2006

Invited Speaker, Statistical Methods in HIV/AIDS and its Practical Application, NIH, Bethesda, October 2006

Invited Speaker, Clinical Immunology in Viral Hepatitis, London, October 2006

Plenary Speaker, 1st Intl Workshop on Hepatitis C Resistance & New Compounds, Boston, October 2006

Plenary Speaker, BIOMAT2006, Manaus, Brazil, November, 2006

Invited speaker, Mathematics Dept., Univ. Utah, Salt Lake City, December 2006

Invited speaker, Schering Plough Research Institute, Kenilworth, NJ, December 2006

Public Lecture, Ohio State University, Columbus, OH, March 2007

Invited Lecturer, Mathematical Biosciences Institute, Ohio State University, March 2007

Invited Lecturer, Princeton University, Princeton, NJ April 2007

After Dinner Speaker, Los Alamos Neutron Scattering Center Users Group Annual Meeting, Santa Fe, June 2007

Invited Lecturer, Los Alamos Q-Bio Summer School, Los Alamos, NM July 2007

Invited Colloquium Speaker, Aspen Center for Physics, Aspen, CO, August 2007

Public Lecture, Aspen Center for Physis, Aspen, CO, August 2007

Invited Lecturer, Institute for Advanced Study, Princeton, October, 2007

Public lecture, Mathematical Sciences Research Institute, Berkeley, October 2007

Two Invited Lectures, Mathematical Sciences Research Institute, Berkeley, October 2007

Invited speaker, Workshop on infectious disease, Los Alamos, October 2007

Invited Special Lecturer, HEP DART 2007, Maui, December 2007

Invited Speaker, Natl. Acad. Sci. Symp. on the Interface of Physics and the Life Sciences, December 2007

Colloquim Speaker, Center for Nonlinear Studies, Los Alamos National Laboratory, April 2008

Invited Speaker, Evolution and Ecology of Infectious Disease Meeting 2008, Colorado State Univ., June 2008]

Invited Speaker, Univ Paris XII, Paris, July 2008

Invited Lecturer, Q-Bio Summer School, Los Alamos, July 2008

Invited Speaker, AASLD Single Topic Conf. on Lessons Learned from HIV, Chicago, July 2008

Invited Speaker, Soc. Math. Biol. Annual Meeting, Toronto, July 2008

Invited Speaker. 4th CHAVI Annual Meeting, Durham, NC Sept. 2008

Invited Plenary Speaker, Evolution in Health and Disease, Gulbenkian Institute, Portugal, Sept. 2008

Invited Speaker, Dynamics Days 2009, San Diego, CA, January 2009

Invited Symp. Speaker, 16th Conference on Retroviruses and other Opportunistic Infections, Montreal, February 2009

Invited Speaker and Session Chair, 13th Intl. Symp. Viral Hepatitis and Liver Disease, Washington DC, March 2009

Invited Speaker, Quantitative Biology Workshop, Univ. Utah, April 2009

Invited Speaker, 12th Intl. Symp. of Immunobiology, Santa Fe, May 2009

Invited Speaker, Fields Institute, Centre for Mathematical Medicine, Univ. of Toronto, May 2009

Invited Speaker, Computational Immunology Workshop, MIT, June 2009

Speaker, Oster Symposium, UC Berkeley, May 2009

Invited Speaker, 5th Intl. Workshop on HIV & Hepatitis Co-infection, Lisbon, June 2009

Invited Plenary Speaker, 16th Germinal Center Conference, Frankfurt, July 2009

Invited Lecturer, Santa Fe Summer School on Quantitative Systems Immunology, August 2009

Invited Speaker, HEP DART 2009, Hawaii, December 2009

Invited Speaker, Workshop on the Immunological Basis of Vaccine Efficacy, Fred Hutchison Cancer Research Center, Seattle, December 2009

Invited Speaker, Univ. New South Wales Medical School, Sydney, March 2009

Symposium Speaker, Amer. Assoc. Pharmaceutical Scientists Natl. Biotech. Meeting, San Francisco, May 2010

Invited speaker, SIAM Life Sciences 2010 Conference, Pittsburgh, July 2010

Plenary speaker, SIAM Life Sciences 2010 Conference, Pittsburgh, July 2010

Invited lecturer, Q-Bio Summer School, Los Alamos, July 2010

Invited speaker, 3rd Intl. Workshop on Systems Biology, Hamilton Institute, Ireland, August 2010

Invited speaker, Santa Fe Workshop on Viral Dynamics and the Innate Immune response to influenza and HCV, Santa Fe, August 2010.

Invited speaker, Infectious Disease Society of America Annual Meeting, Vancouver, October 2010

Invited speaker, Kavli Institute of Theoretical Physics, Univ. of California, Santa Barbara, January 2011.

Invited speaker, RAPIDD Workshop on the Generation and Maintenance of Immune Memory, Univ. of Washington, Seattle, March 2011.

Invited Speaker, Intl Conf on Biological Physics, San Diego, CA, May 2011

Invited speaker, Systems Biology of Influenza Symp., Yale, June 2011

Invited Speaker, Mathematical Frontiers in the Life Sciences, Univ of Limerick, Ireland, July 2011

Invited lecturer, Laboratory of Statistical Physics, Ecole Normale Supérieure, Paris, July 2011

Invited speaker, Merck Global Health Forum, Philadelphia, June 2011

Invited lecturer, Q-Bio Summer School, Los Alamos, July 2011

Invited lecturer, Q-Bio Conference, Santa Fe, August 2011

Invited speaker, Yale School of Public Health, October 2011

Invited speaker, Gilead Pharmaceuticals, Foster City, CA, October 2011

Invited speaker, HEP DART 2011, Kauai, Dec 2011

Speaker, Conference on Retroviruses and other Opportunistic Infections (CROI), Seattle, March 2012

Invited speaker, ACTG Scientific Retreat: HIV Reservoirs and Viral Eradication Think Thank, Seattle, March 2012

Invited speaker, AASLD Single Topic Conf on Direct Acting Antivirals, Atlanta, March 2012

Plenary lecturer, BIOCOMP2012, Vietri sul Mare, Italy, June 2012

Plenary speaker, Symp. for Modeling Immune Responses from Complex Data, Univ Rochester, June 2012

Invited lecturer, SFI Complex Systems Summer School, June 2012

Invited speaker, 2nd Annual Combination and Novel HCV Therapies Conference, San Francisco, July 2012

Invited Speaker, Quantitative Translational Models to Accelerate Hepatitis C Drug Development, Univ. Maryland School of Pharmacy, August 2012

Invited speaker, Workshop on Multiscale Modeling, Center for Nonlinear Sciences, Los Alamos National Laboratory, September 2012

Invited speaker, HCV Multiscale Modeling Workshop, Univ of Illinois Chicago, October 2012

Invited Speaker, Loyola University, Chicago, October 2012

Invited Speaker, MIT Applied Math. Colloquium, November 2012

Invited Speaker, Disease Dynamics 2013, Univ British Columbia, Vancouver, January 2013