

SIMON ASHER LEVIN

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EDUCATION

B.A.	The Johns Hopkins University	Mathematics 1961
Ph.D.	The University of Maryland	Mathematics 1964

PROFESSIONAL EXPERIENCE

Princeton University

2019- Associated Faculty, Andlinger Center for Energy and the Environment
 2017- Associated Faculty, Princeton University Center for Human Values
 2016- James S. McDonnell Distinguished University Professor in Ecology and Evolutionary Biology
 2014- Associated Faculty, Center for Policy Research on Energy and the Environment (C-PREE)
 2012- Faculty Associate, Graduate Certificate in Computational and Information Science (PICSciE)
 2012- Faculty Associate, Princeton Institute for International and Regional Studies (PIIRS)
 2009- Faculty, Quantitative and Computational Biology Program, Princeton University
 2001- Director, Center for BioComplexity
 1994- Affiliated Faculty, Princeton Environmental Institute
 1993-98 Founding Director, Princeton Environmental Institute
 1992- Affiliated Faculty, Program in Applied and Computational Mathematics
 1992-2016 George M. Moffett Professor of Biology

Cornell University

1992- Adjunct Professor, Ecology and Evolutionary Biology; Center for Applied Mathematics
 1985-92 Charles A. Alexander Professor of Biological Sciences
 1990-92 Director, Program on Theoretical and Computational Biology
 1987-90 Director, Center for Environmental Research
 1980-87 Director, Ecosystems Research Center
 1977-92 Professor of Applied Mathematics and Ecology
 1974-79 Chair, Section of Ecology and Systematics, Division of Biological Sciences
 1971-77 Associate Professor
 1965-71 Assistant Professor

Arizona State University

2018- Visiting Professor

ACHIEVEMENTS IN RESEARCH

Simon Levin is an ecologist, noted especially for his contributions to the development of the foundations of spatial ecology, for his work on pattern and scale, and more recently for his research at the interface between ecology and economics, especially problems of public goods, common pool resources, and the global commons. His book, *Fragile Dominion*, along with his subsequent research, weaves these themes together, invoking ecological and Evolutionary theory to inform principles for management practice.

Levin's research has been devoted to understanding the dynamics of biological diversity at all levels, from the molecular diversity of diseases to the diversity of global ecological and cultural systems. It is furthermore concerned with exploring the importance of that diversity for humans, and socioeconomic mechanisms for sustaining diversity. He has combined mathematical modeling with empirical

investigations to explore the dynamics of biodiversity and biocomplexity, including infectious diseases and the interactions between ecological systems and socioeconomic systems, with attention to the management of natural resources. Throughout, a central thread has been the development of rules for scaling from the microscopic to the macroscopic, from individuals to collectives, from small scales to large, from short time scales to long. He has built interfaces between theoretical investigations and their application to the management of natural resources, used those applications to stimulate theoretical investigations and the elucidation of general principles for the management of ecological systems.

HONORS AND AWARDS

Major International Prizes

A.H. Heineken Prize for Environmental Sciences, Royal Netherlands Academy of Arts and Sciences (2004)

Kyoto Prize in Basic Sciences, Inamori Foundation, Japan (2005)

Ramon Margalef Prize in Ecology and Environmental Sciences, Government of Catalonia (2010)

Tyler Prize for Environmental Achievement (2014)

Luca Pacioli Prize, Ca'Foscari University of Venice, Italy (2014)

National Medal of Science (2014)

Major Honorary Societies

Fellow, American Academy of Arts and Sciences (1992)

Member, National Academy of Sciences (2000)

Member, American Philosophical Society) (2003)

Foreign Member, Istituto Veneto di Scienze, Lettere ed Arti, Venice (2008)

Foreign Member, Istituto Lombardo, Milan (2014)

Major Society Awards

MacArthur Award, Ecological Society of America (1988)

Fellow, American Association for the Advancement of Science (AAAS) (1992)

Distinguished Statistical Ecologist Award, International Association for Ecology (INTECOL) (1994)

Distinguished Service Citation of the Ecological Society of America (1998)

The First Okubo Lifetime Achievement Award, Society for Mathematical Biology and Japanese Society for Theoretical Biology (2001)

Distinguished Landscape Ecologist Award, U.S. Regional Association of the International Association for Landscape Ecology (US-IALE) (2003)

I.E. Block Community Lecture Award, Society for Industrial and Applied Mathematics (2006)

Distinguished Scientist Award, American Institute of Biological Sciences (2007)

Fellow, Society for Industrial and Applied Mathematics (2009)

Eminent Ecologist Award, Ecological Society of America (2010)

Lifetime National Associate, National Research Council of the National Academies (2011)

Fellow, Ecological Society of America (2012)

Honorary Degrees

Honorary Doctor of Sciences, Eastern Michigan University (1990)

Honorary Doctor of Humane Letters Honoris Causa, Whittier College (2004)

Honorary Doctor of Science, Michigan State University (2009)

Honorary Doctor of Science, McMaster University (2015)

Honorary Doctor of Science, University of Victoria (2019)

Fellowships

NSF Predoctoral Fellow, University of Maryland, College Park (1962-64)

NSF Postdoctoral Fellow, University of California, Berkeley (1964-65)

Guggenheim Fellow (1979-80)

Japan Society for the Promotion of Science Fellowship, Kyoto, Japan (1983-4)

Publication Awards

- Best Publication in Landscape Ecology Award for 1990 (with D. Andow, P. Kareiva, A. Okubo), U.S. Chapter, International Association for Landscape Ecology
- Outstanding Paper in the Discipline of Landscape Ecology Award for 2001 (with J. Keymer, P.A. Marquet, J.X. Velasco-Hernandez), U.S. Chapter, International Association for Landscape Ecology
- Most cited paper in the field of Ecology and Environment for the 1990s, Institute for Scientific Information (2002)
- Most cited paper in 2005-2009 (with R. Durrett), Elsevier's Economic and Finance Journals (2010)
- Co-author of Mercer Award winning paper (with C. Staver, S. Archibald, *Ecology* 201) (2012)
- Co-author of President's Award for best paper in the *American Naturalist* (with C. Farris et al., 2013) (2014)
- Co-author of one of the most-cited 2018 *PNAS* Papers (Klein, E. *et al.* 2018. Global increase and geographic convergence in antibiotic consumption between 2000 and 2015. *PNAS* 115(15): E3463-E3470)
- Co-author of paper that received the International Consortium of Chinese Mathematicians Best Paper Award 2018 (Lei, J. *et al.* 2014. Mathematical model of adult stem cell regulation with cross-talk Between genetic and epigenetic regulation. *PNAS* 111(10): E880-7)

Other

- The Honor Society of Phi Kappa Phi Biology Colloquium Award, Oregon State University (1991)
- Clay Mathematics Institute Senior Scholar (2004-2005)
- Medallion of the Université de Montpellier (2004)
- Beijer Fellow, Beijer Institute of Ecological Economics, Stockholm, Sweden (2007-)
- University Fellow, Resources for the Future (2008-)
- Distinguished Alumnus of the Year Award, University of Maryland, College of Computer, Mathematical and Natural Sciences (2011)
- IIASA Honorary Scholar (2012-)
- Academic Fellow, Boston Consulting Group (2012-)
- The Mathematical, Computational and Modeling Sciences Center at Arizona State University Relunched in Honor of Simon A. Levin as The Simon A. Levin Mathematical, Computational, and Modeling Sciences Center (2014)
- IIASA Distinguished Visiting Fellow (2014) Society for Mathematical Biology Fellow (2017)
- Lifetime Fellow, Santa Fe Institute, Santa Fe, NM (2018)

CURRENT PROFESSIONAL ACTIVITIES

SCIENCE/ADVISORY BOARDS:

Board of Directors

- The Committee of Concerned Scientists, Vice-Chair (Mathematics), (1979-)

Science/Advisory Boards

- Science Advisory Board, Santa Fe Institute, NM, (1991-99; 2001-05; 2011-17; 2018-); Co-Chair (2007-10); Advisory Board Educational and Outreach Programs Committee (2014-); Lifetime Fellow (2018-)
- Advisory Board, Institute for Medical BioMathematics, Bene Ataroth, Israel (1999-)
- Chair, Scientific Advisory Board of the Quantitative Biology Group at AIMS-Ghana (2014-)
- International Advisory Board, Graduate Education and Research Training Program in Decision Science for a Sustainable Society of the Program for Leading Graduate School of the Japan Society for the Promotion of Science, Kyushu University (2015-)
- Science Advisory Board, Mathematical Board on Sciences and Analytics, National Research Council, National Academy of Sciences, Engineering, and Medicine (2015-)
- Science Advisory Board, Complexity Sciences Hub of Vienna, Austria (2016-)

Science Advisory Board, EcoPotential: Improving Future Ecosystem Benefits through Earth Observations, Politecnico Di Milano, Italy (2016-)
 Advisory Board, SIAM Activity Group on Mathematics of Planet Earth (2017-)
 Advisor, James S. McDonnell Foundation
 Advisory Board, Institute for the Mathematical Sciences of the Americas, University of Miami (Funded by the Simons Foundation) (2018-)
 Advisory Council, Stockholm Resilience Center Scientific Advisory Council (2019-)
 Scientific Advisory Board, Instituto Serrapilheira, Brazil (2019-)

Other Committees

ESA Past Presidents Committee (2011-)
 SparcS Fellow, Synergy Program on Resilience and Critical TransitionS (2012-)
 Sabin-Aspen Vaccine Science and Policy Strategy Group, The Sabin Vaccine Institute (2018-)
 Review Committee, NAS, Review of Board on Mathematical Sciences and Analytics (2019-)

Princeton University Service Committees

Princeton Environmental Institute Advisory Committee (1993-)
 Member, Environmental Studies Building Committee (2018-)
 Executive Committee of the Sustainable Energy (SE) Program, Andlinger Center (2019-22)

EDITORIAL:

Editor-in-Chief/Managing Editor

Monographs in Population Biology (with Henry S. Horn until 03/2019; with Rob Pringle and Corina Tarnita 04/19-), Princeton University Press (1992-)
 Complexity Series (with co-editor Stephen Strogatz), Princeton University Press (1997-)
 Princeton Series in Theoretical and Computational Biology, Princeton University Press (2003-)

Honorary Editor

Journal of Mathematical Biology (Co-Managing Ed. 1976-95; Advisory Ed., 1973-76; Honorary Ed. 1995-)
 Bulletin for Mathematical Biology (1996-)
 Theoretical Ecology (2006-)

Editorial Boards

Mathematical and Computer Modelling (1979-)
 Applied Mathematics Letters (1987-)
 Mathematical Biosciences (1987-)
 Papers on Mathematical Ecology (1987-)
 Journal of Biomathematics (China), (1999-)
 Faculty of 1000, Co-Section Head, Theoretical Ecology (2004-)
 Journal of Biomathematics (Series B, English) (2006-)
 Princeton University Press, Primers in Complexity (2007-)
 Princeton University Press, Science Essential Series (2007-)
 PNAS, Environmental Sciences & Ecology (2011-); Perspectives Section (2011-)
 PeerJ (2012-)
 Movement Ecology (2012-)

Advisory Boards

Frontiers in Ecology and the Environment (2002-)
 Mathematical Biosciences and Engineering (2004-)
 Journal of Biological Dynamics (2006-)
 Landscape Ecology (2006-)
 PLoS Computational Biology (2007-)
 F1000 Prime, Head of Section for Theoretical Biology (2013-)
 Ecosystem Health and Sustainability (EHS) (2014-)