



NATIONAL RESEARCH
UNIVERSITY

Library

ANNUAL REVIEWS

Annual Reviews Publisher

Moscow, 2020

ANNUAL REVIEWS

Online Access to Scientific Journals

Annual Reviews is a nonprofit publisher of highly cited reviews written by invited experts. There are 40 annually published journals and each of them is titled «Annual Review of...».

We have access to whole archives, from the very first issue to the most recent ones.

ANNUAL REVIEWS

Key Benefits

- Accessible on any device;
- A variety of academic fields;
- Reviews by top researchers;
- Search by academic field, title, subject, author, citations, etc.

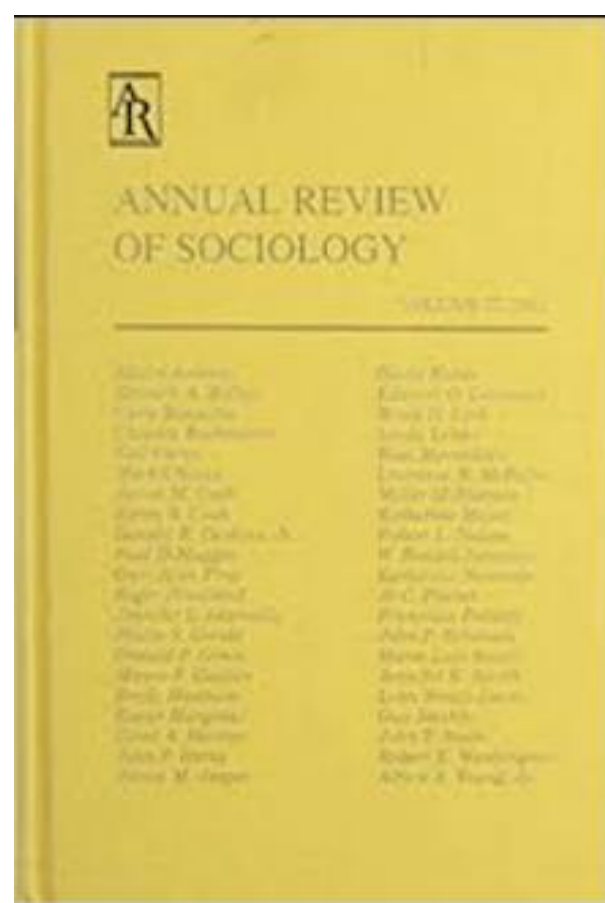
ANNUAL REVIEWS

Subjects

- Analytical Chemistry
- Astronomy
- Animal Biosciences
- Anthropology
- Biochemistry
- Biomedical Engineering
- Biophysics
- Clinical Psychology
- Criminology
- Psychology
- Natural Science
- Computer Science
- Economics
- Financial Economics
- Genetics
- Immunology
- Law and Social Science
- Linguistics
- Medicine
- Pharmacology and Toxicology
- Statistics
- Virology
- Ecology
- Political Science

ANNUAL REVIEWS

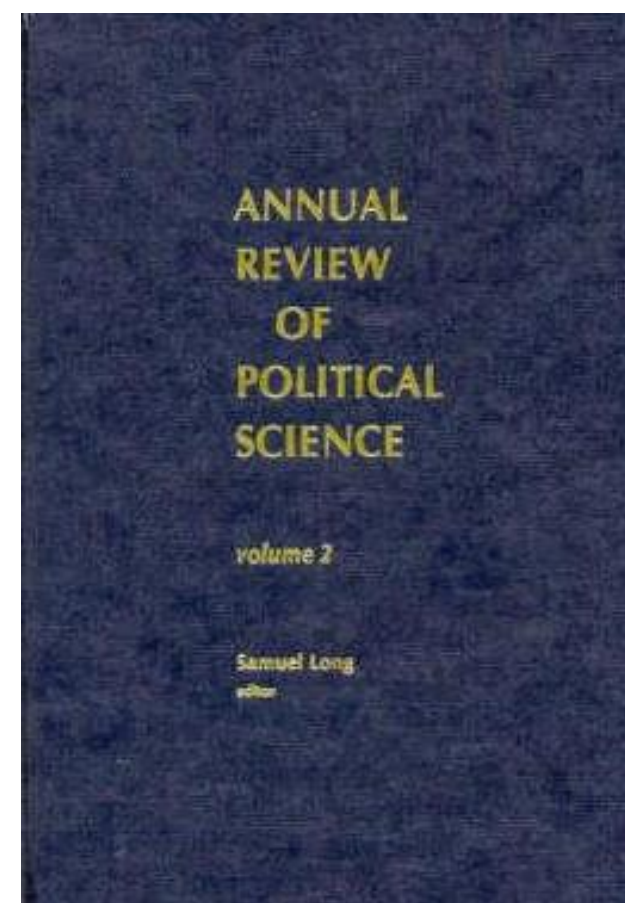
Humanities and Social Sciences



Annual Review of
Sociology

IF 6.400

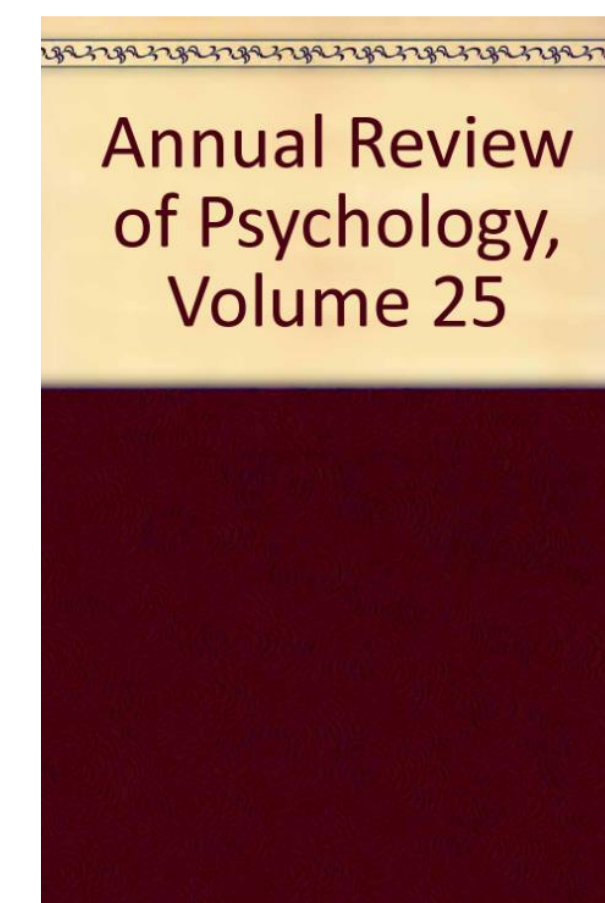
2019 JCR Ranking*: 1/150
Sociology Category



Annual Review of
Political Science

IF 4.000

2019 JCR Ranking: 8/181
Political Science Category



Annual Review of
Psychology

IF 18.111

2019 JCR Ranking: 3/138 Psychology,
Multidisciplinary Category

*Journal Citation Reports 2019 (JCR) by Clarivate Analytics is a world-recognized journal citations source and monitors more than 11000 journals in 234 academic fields from 81 countries. 2019 issue was published in June of 2020.

ANNUAL REVIEWS

Humanities and Social Sciences



Annual Review of
Economics

IF 3.591

2019 JCR Ranking: 39/373
Economics Category



Annual Review of
Financial Economics

IF 2.057

2019 JCR Ranking: 36/109
Business, Finance Category



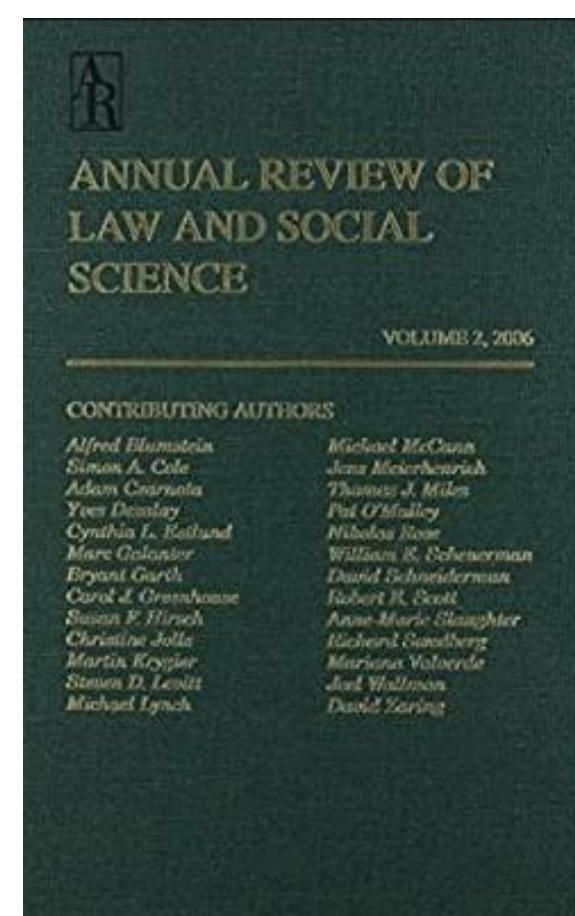
Annual Review of
Resource Economics

IF 2.745

2019 JCR Ranking: 70/373
Economics Category

ANNUAL REVIEWS

Humanities and Social Sciences



Annual Review of Law
and Social Science

IF 2.588

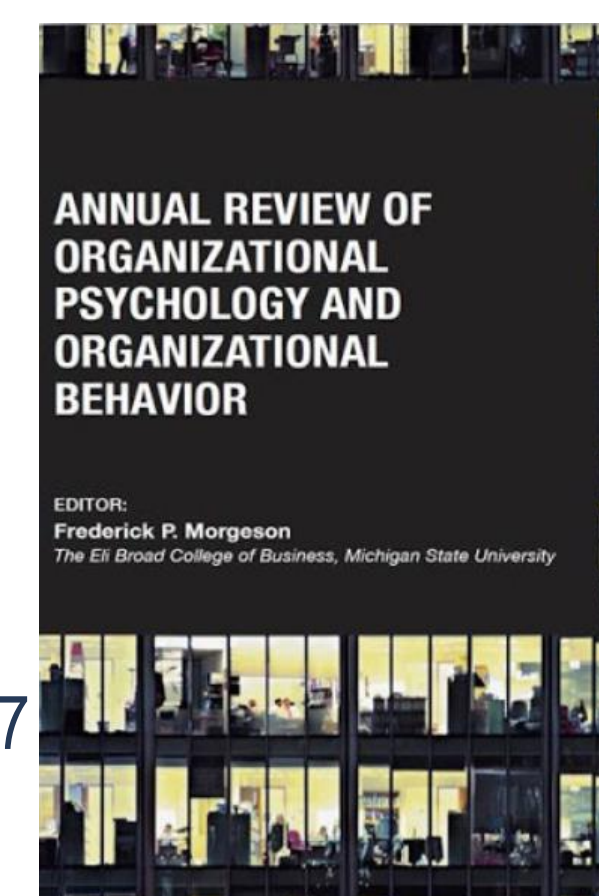
2019 JCR Ranking: 19/155
Law Category



Annual Review of
Linguistics

IF 2.026

2019 JCR Ranking: 23/187
Linguistics Category



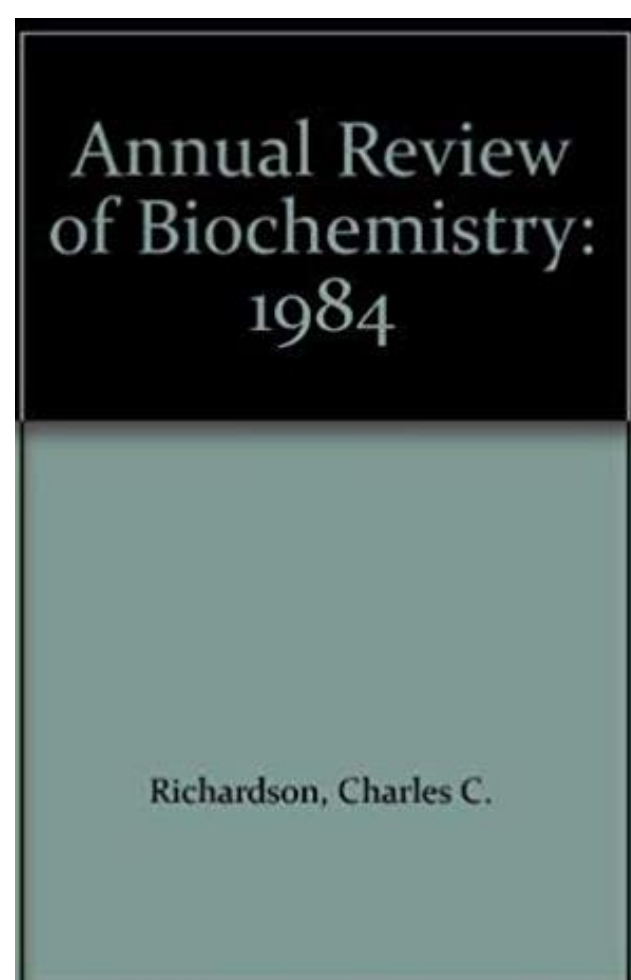
Annual Review of
Organizational Psychology
and Organizational Behavior

IF 10.795

2019 JCR Ranking: 2/226
Management Category

ANNUAL REVIEWS

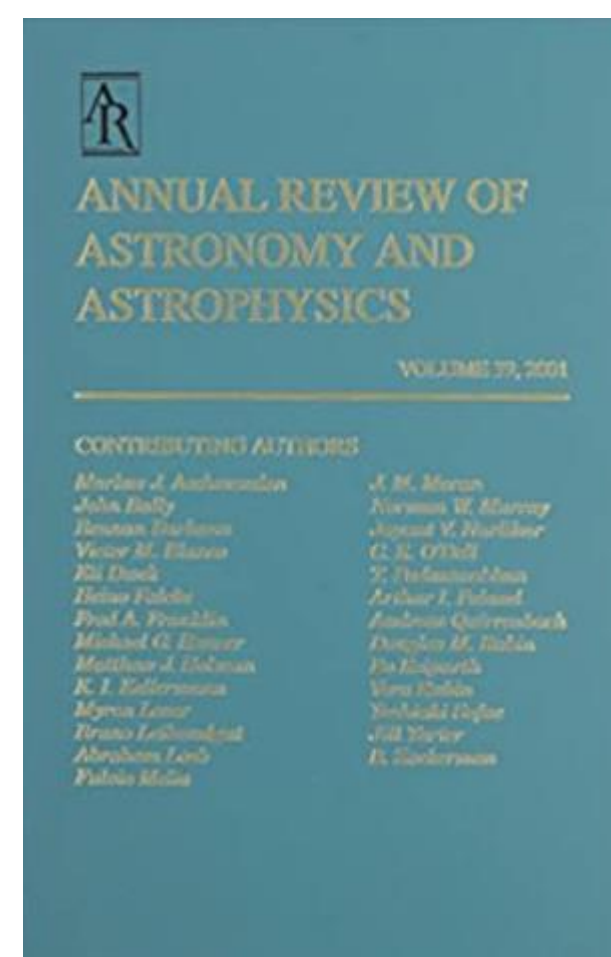
Natural Science, Engineering Sciences and Medical Sciences



Annual Review of
Biochemistry

IF 25.787

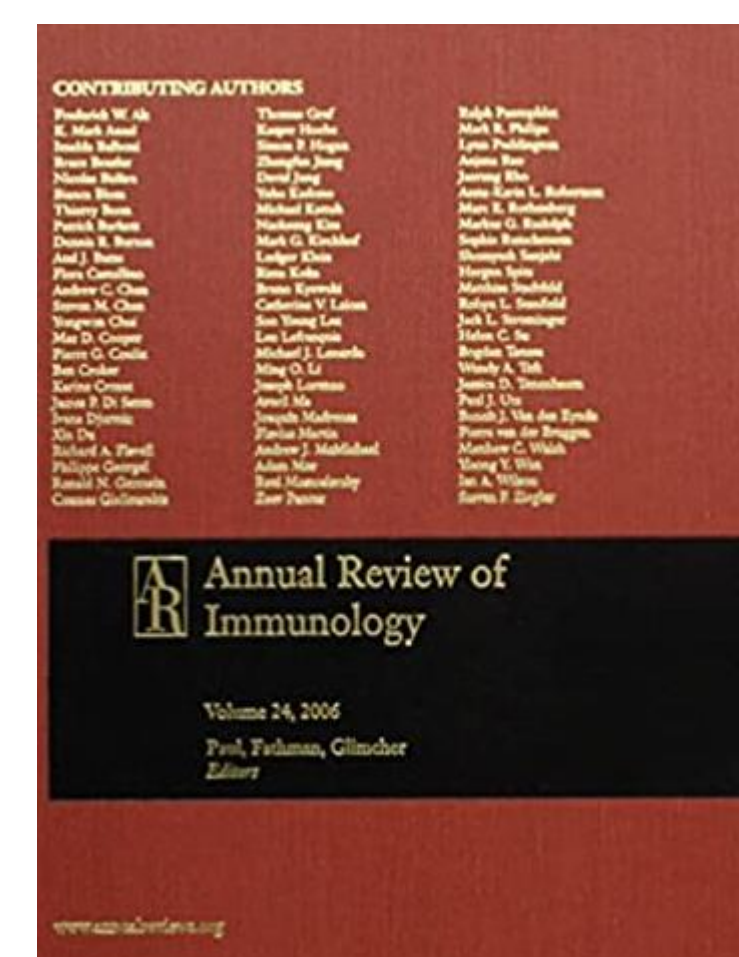
2019 JCR Ranking*: 3/297
Biochemistry & Molecular
Biology Category



Annual Review of
Astronomy and
Astrophysics

IF 33.000

2019 JCR Ranking: 1/68
Astronomy & Astrophysics
Category



Annual Review of
Immunology

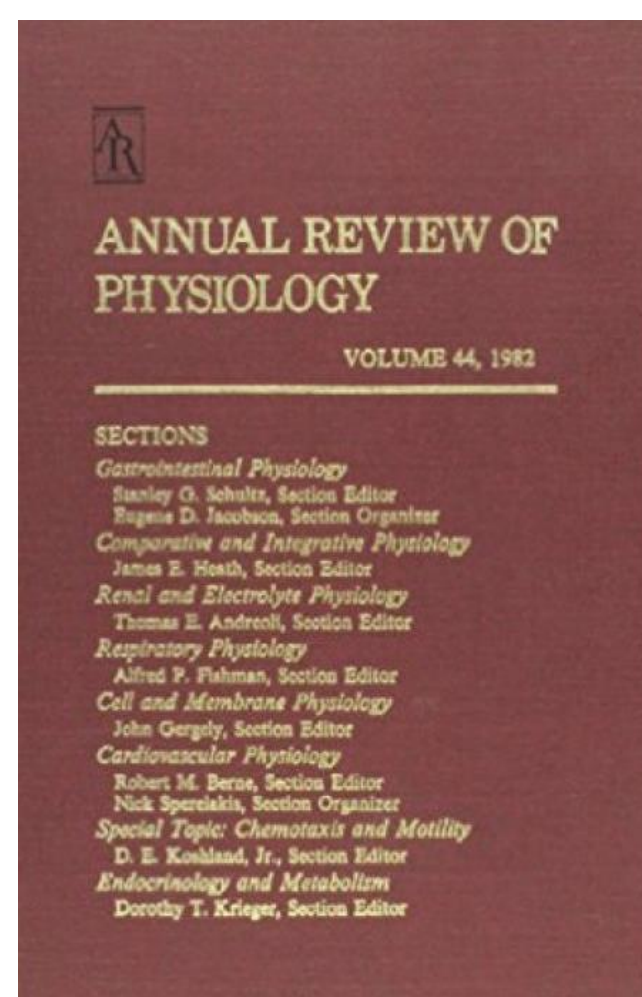
IF 19.900

2019 JCR Ranking : 4/159
Immunology Category

*Journal Citation Reports 2019 (JCR) by Clarivate Analytics is a world-recognized journal citations source and monitors more than 11000 journals in 234 academic fields from 81 countries. 2019 issue was published in June of 2020.

ANNUAL REVIEWS

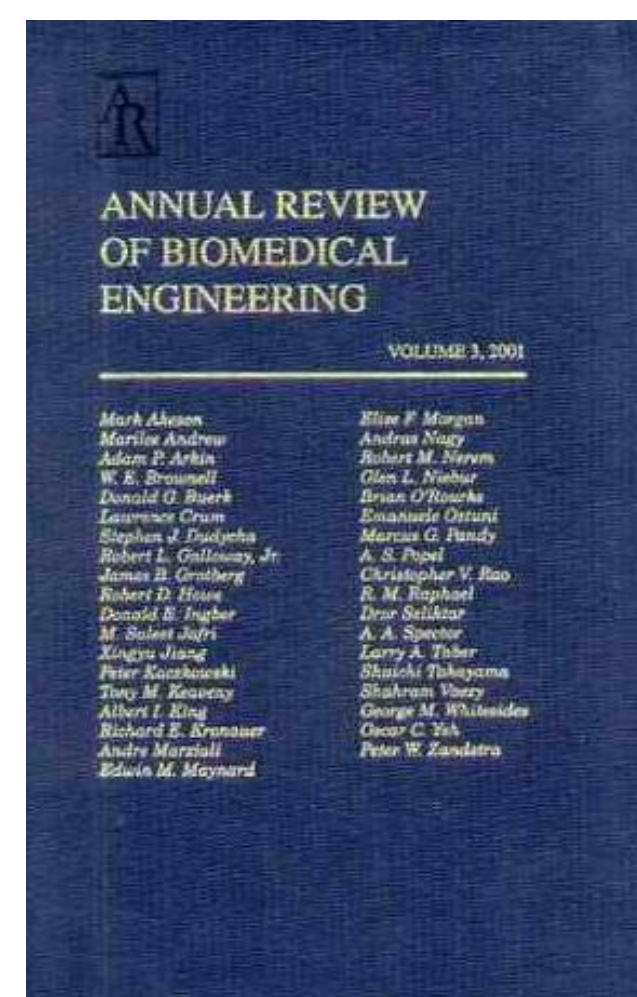
Natural Science, Engineering Sciences and Medical Sciences



Annual Review of
Physiology

IF 19.556

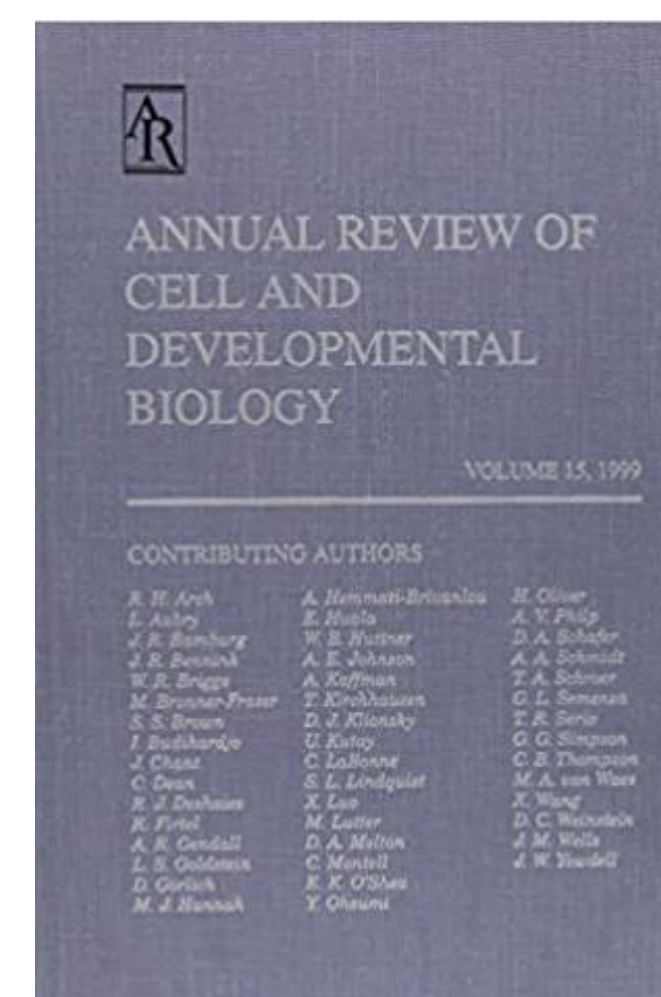
2019 JCR Ranking: 2/81
Physiology Category



Annual Review of
Biomedical Engineering

IF 15.541

2019 JCR Ranking : 2/87
Engineering, Biomedical
Category



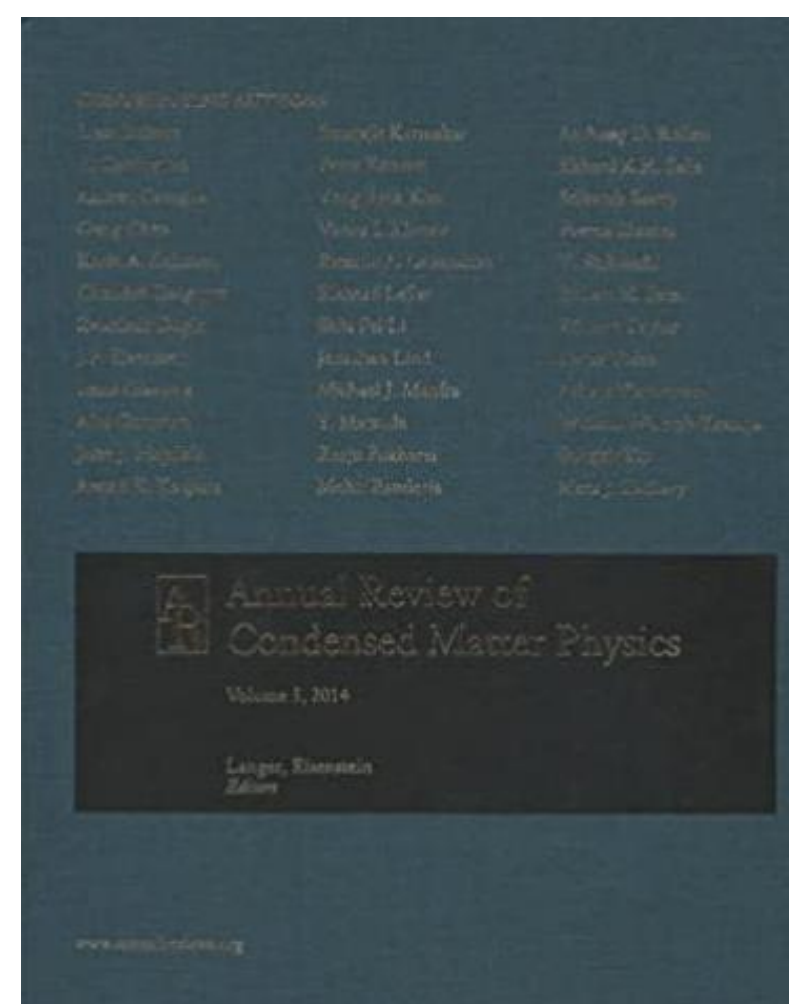
Annual Review of Cell and
Developmental Biology

IF 14.667

2019 JCR Ranking : 13/195
Cell Biology Category

ANNUAL REVIEWS

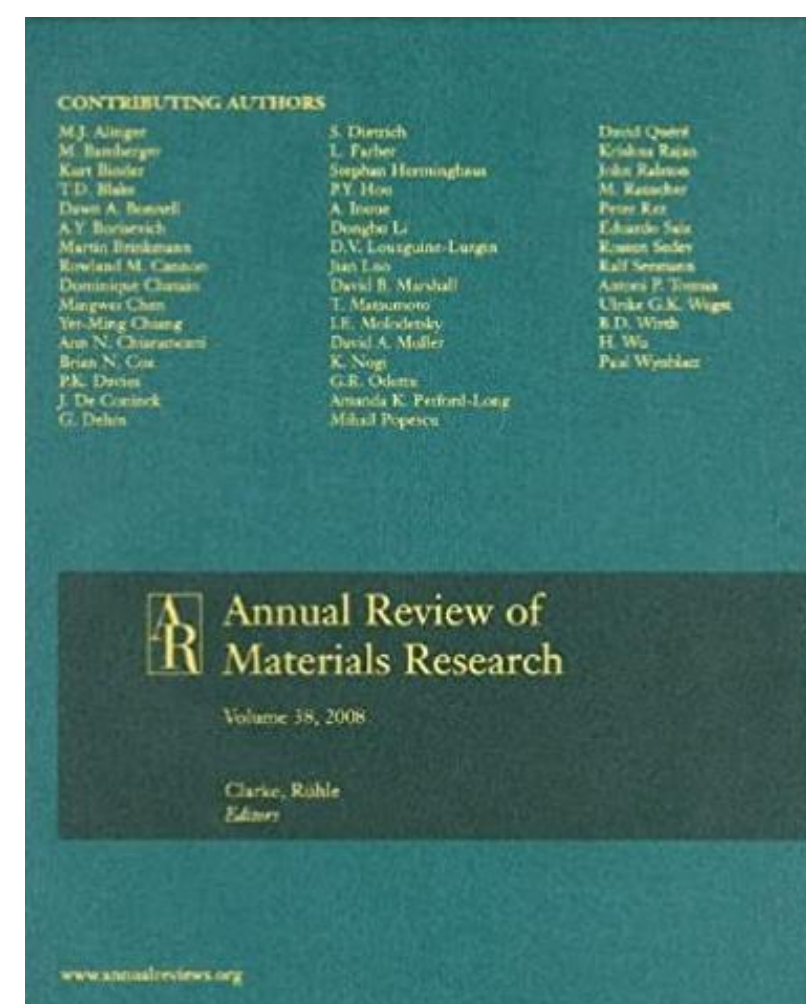
Natural Science, Engineering Sciences and Medical Sciences



Annual Review of
Condensed Matter
Physics

IF 14.833

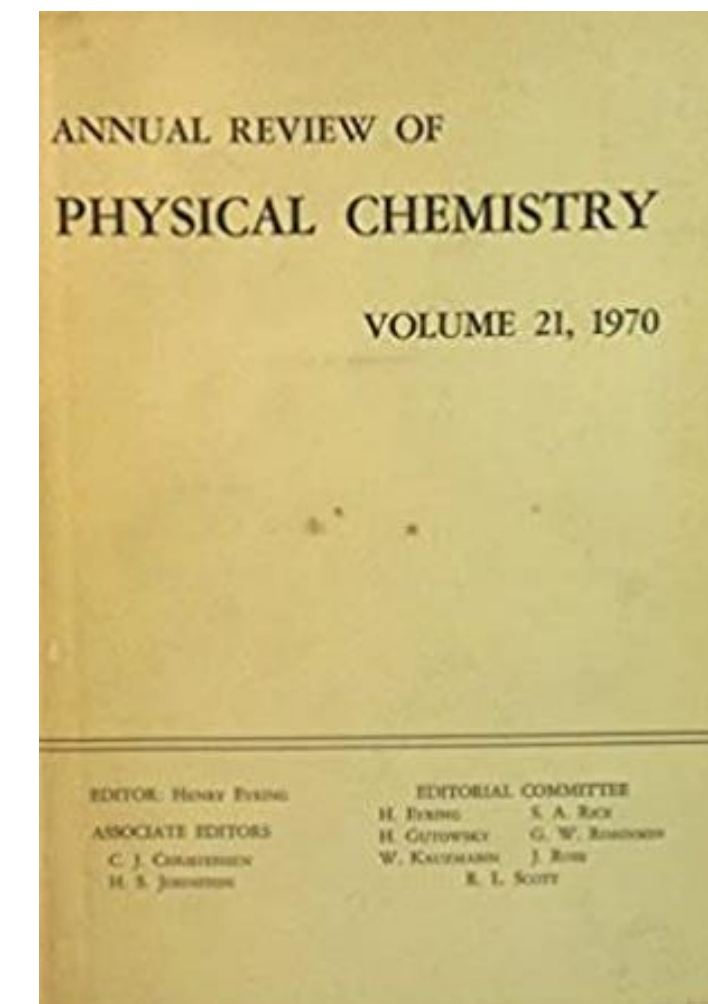
2019 JCR Ranking: 6/69
Physics, Condensed Matter
Category



Annual Review of
Materials Research

IF 12.531

2019 JCR Ranking: 19/314
Materials Science,
Multidisciplinary Category



Annual Review of
Physical Chemistry

IF 10.638

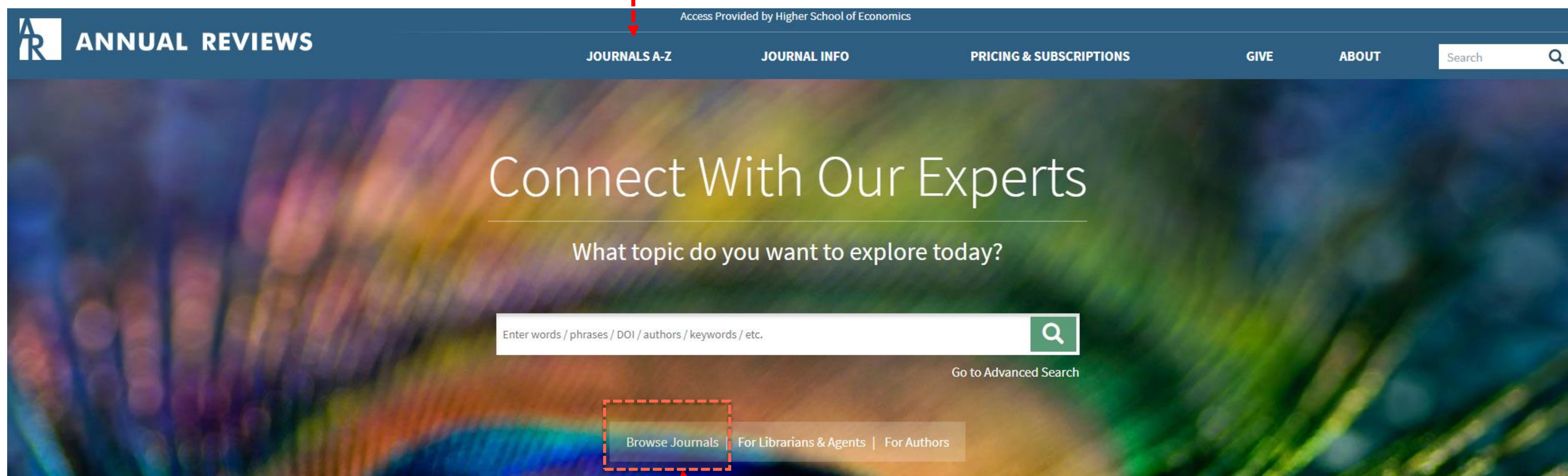
2019 JCR Ranking : 19/159
Chemistry, Physical Category



ANNUAL REVIEWS

Homepage

Journals in alphabetical order



Subjects

ANNUAL REVIEWS

List of Published Journals

ANNUAL REVIEWS

Home / Browse

Journals A-Z

Analytical Chemistry

Animal Biosciences

Anthropology

Astronomy and Astrophysics

Biochemistry

Biomedical Data Science (32)

Biomedical Engineering

Biophysics

Cancer Biology

Cell and Developmental Biology

Chemical and Biomolecular Engineering

Clinical Psychology

Computer Science

PHYSICAL SCIENCES (18)

Condensed Matter Physics

Control, Robotics, and Autonomous Systems

Criminology

Developmental Psychology (new in 2019)

Earth and Planetary Sciences

Ecology, Evolution, and Systematics

Economics (18)

Entomology

Environment and Resources

Financial Economics

Fluid Mechanics

Food Science and Technology

Genetics

Genomics and Human Genetics

ECONOMICS (3)

Immunology

Law and Social Science

Linguistics

Marine Science

Materials Research

Medicine

Microbiology

Neuroscience

Nuclear and Particle Science

Nutrition

Organizational Psychology and Organizational Behavior

Pathology: Mechanisms of Disease

Pharmacology and Toxicology

Physical Chemistry

Physiology

Phytopathology

Plant Biology

Information for Authors

Pricing & Subscriptions

RSS Feed

Sign Up for eTOC Email Alerts

Annual Review of Physical Chemistry

Journal Home

Current Volume

Ahead of Publication

All Volumes

PUBLISHED SINCE

1950

IMPACT FACTOR

10.638

AIMS AND SCOPE OF JOURNAL: The *Annual Review of Physical Chemistry*, in publication since 1950, covers significant developments in the field of physical chemistry, including biophysical chemistry, chemical kinetics, colloids, electrochemistry, geochemistry and cosmochemistry, chemistry of atmosphere and climate, laser chemistry and ultrafast processes, the liquid state, magnetic resonance, physical organic chemistry, polymers and macromolecules, and more.

eISSN: 1545-1593

Editorial Committee

Editorial Principles and Policies

Current Volume

VOLUME 71, APRIL 2020

Co-Editors: Mark A. Johnson & Todd J. Martínez

TABLE OF CONTENTS

ANNUAL REVIEWS

Volume Information

Current volume info

Article info

Choose volume

The screenshot displays the 'Annual Review of Physical Chemistry' website. At the top, a dark blue header contains the journal title and navigation links: 'Journal Home', 'Current Volume' (highlighted with a red dashed box), 'Ahead of Publication', and 'All Volumes'. To the right, a light blue sidebar lists links for 'Information for Authors', 'Pricing & Subscriptions', 'RSS Feed', and 'Sign Up for eTOC Email Alerts'. Below the header, a light blue bar contains a 'Table of Contents' link and two dropdown menus: '2020s' and 'Volume 71, 2020' (highlighted with a red dashed box). The main content area is titled 'Volume 71, 2020' and includes a 'Select All' checkbox. A specific article is highlighted with a red dashed box: 'Spatially Resolved Photogenerated Exciton and Charge Transport in Emerging Semiconductors' by Naomi S. Ginsberg and William A. Tisdale, Vol. 71, 2020, pp. 1–30. The article's abstract is visible, along with links for 'Full Text HTML' and 'Download PDF'. To the right of the article, there are buttons for 'Full Text HTML', 'Download PDF', and 'Open URL'. At the bottom right, a 'Figures' section shows a diagram illustrating the degree of dielectric screening and electronic coupling in various materials, including metal halide perovskites, quantum dot solids, organic semiconductors, and 2D TMDs. The diagram shows the transition from strong localization to weak localization as dielectric screening increases and electronic coupling decreases.

ANNUAL REVIEWS

Brief Article Information

Title

Spatially Resolved Photogenerated Exciton and Charge Transport in Emerging Semiconductors

Annual Review of Physical Chemistry

Vol. 71:1-30 (Volume publication date April 2020)

First published as a Review in Advance on November 22, 2019

<https://doi.org/10.1146/annurev-physchem-052516-050703>

Authors

Naomi S. Ginsberg^{1,2,3} and William A. Tisdale⁴¹Department of Chemistry and Department of Physics, University of California, Berkeley, California 94720, USA; email: nsnginsberg@berkeley.edu²Material Sciences Division and Molecular Biophysics and Integrated Bioimaging Division, Lawrence Berkeley National Laboratory, Berkeley, California 94720, USA³Kavli Energy NanoSciences Institute, Berkeley, California 94720, USA⁴Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA; email: tisdale@mit.edu[Full Text HTML](#)[Download PDF](#)[Article Metrics](#)[Permissions](#) | [Reprints](#) | [Download Citation](#) | [Citation Alerts](#)

Sections

[ABSTRACT](#)[KEYWORDS](#)[INTRODUCTION](#)[SPATIOTEMPORAL MEASUREMENTS OF
PHOTOGENERATED ELECTRONIC ENERGY
FLOW](#)[APPLICATIONS OF SPATIOTEMPORAL
CHARACTERIZATION OF ELECTRONIC
ENERGY TRANSPORT](#)[OUTLOOK: THE PRESENT AND FUTURE OF
SPATIOTEMPORALLY RESOLVED ENERGY
FLOW](#)[DISCLOSURE STATEMENT](#)[ACKNOWLEDGMENTS](#)[LITERATURE CITED](#)

Abstract

We review recent advances in the characterization of electronic forms of energy transport in emerging semiconductors. The approaches described all temporally and spatially resolve the evolution of initially localized populations of photogenerated excitons or charge carriers. We first provide a comprehensive background for describing the physical origin and nature of electronic energy transport both microscopically and from the perspective of the observer. We introduce the new family of far-field, time-resolved optical microscopies developed to directly resolve not only the extent of this transport but also its potentially temporally and spatially dependent rate. We review a representation of examples from the recent literature, including investigation of energy flow in colloidal quantum dot solids, organic semiconductors, organic-inorganic metal halide perovskites, and 2D transition metal dichalcogenides. These examples illustrate how traditional parameters like diffusivity are applicable only within limited spatiotemporal ranges and how the techniques at the core of this review, especially when taken together, are revealing a more complete picture of the spatiotemporal evolution of energy transport in complex semiconductors, even as a function of their structural heterogeneities.

Keywords

heterogeneous energy materials, nonequilibrium dynamics, optical spectroscopy, spatiotemporal, diffusion, ultrafast microscopy

Article Metrics and Citation Information

TIMES CITED

[Web of Science®](#) 9[Crossref](#) 13[Google Scholar](#)

Keywords

ANNUAL REVIEWS

Full Article Information

Article info

Article PDF

Article sections

Related articles

Machine Learning for Molecular Simulation

Annual Review of Physical Chemistry
Vol. 71:361-390 (Volume publication date April 2020)
First published as a Review in Advance on February 24, 2020
<https://doi.org/10.1146/annurev-physchem-042018-052331>

Frank Noé,^{1,2,3} Alexandre Tkatchenko,⁴ Klaus-Robert Müller,^{5,6,7} and Cecilia Clementi^{1,3,8}

¹Department of Mathematics and Computer Science, Freie Universität Berlin, 14195 Berlin, Germany; email: frank.noe@fu-berlin.de
²Department of Physics, Freie Universität Berlin, 14195 Berlin, Germany
³Department of Chemistry and Center for Theoretical Biological Physics, Rice University, Houston, Texas 77005, USA; email: cecilia@rice.edu
⁴Physics and Materials Science Research Unit, University of Luxembourg, 1511 Luxembourg, Luxembourg; email: alexandre.tkatchenko@uni.lu
⁵Department of Computer Science, Technical University Berlin, 10587 Berlin, Germany; email: klaus-robert.mueller@tu-berlin.de
⁶Max-Planck-Institut für Informatik, 66123 Saarbrücken, Germany
⁷Department of Brain and Cognitive Engineering, Korea University, Seoul 136-713, South Korea
⁸Department of Physics, Rice University, Houston, Texas 77005, USA

[Download PDF](#) [Article Metrics](#) [Permissions](#) | [Reprints](#) | [Download Citation](#) | [Citation Alerts](#)

Sections

- ABSTRACT
- KEYWORDS
- INTRODUCTION
- MACHINE LEARNING PROBLEMS FOR MOLECULAR SIMULATION
- INCORPORATING PHYSICS INTO MACHINE LEARNING
- DEEP LEARNING ARCHITECTURES FOR MOLECULAR SIMULATION
- DISCUSSION
- DISCLOSURE STATEMENT
- ACKNOWLEDGMENTS
- LITERATURE CITED

Abstract

Machine learning (ML) is transforming all areas of science. The complex and time-consuming calculations in molecular simulations are particularly suitable for an ML revolution and have already been profoundly affected by the application of existing ML methods. Here we review recent ML methods for molecular simulation, with particular focus on (deep) neural networks for the prediction of quantum-mechanical energies and forces, on coarse-grained molecular dynamics, on the extraction of free energy surfaces and kinetics, and on generative network approaches to sample molecular equilibrium structures and compute thermodynamics. To explain these methods and illustrate open methodological problems, we review some important principles of molecular physics and describe how they can be incorporated into ML structures. Finally, we identify and describe a list of open challenges for the interface between ML and molecular simulation.

Keywords

machine learning, neural networks, molecular simulation, quantum mechanics, coarse graining, kinetics

1. INTRODUCTION

In 1929 Paul Dirac (1, p. 714) stated,

The underlying physical laws necessary for the mathematical theory of a large part of physics and the whole of chemistry are thus completely known, and the difficulty is only that the exact application of these laws leads to equations much too complicated to be soluble. It therefore becomes desirable that approximate practical methods of applying quantum mechanics should be developed, which can lead to an explanation of the main features of complex atomic systems without too much computation.

Ninety years later, this quote is still state of the art. However, in the past decade, new tools from the rapidly developing field of machine learning (ML) have started to make a significant impact on the development of approximate methods for complex atomic systems, bypassing the direct solution of “equations much too complicated to be soluble.”

[<< Previous Article](#) [Next Article >>](#)

From **KNOWABLE MAGAZINE**
Covid stole my Dad's final months

DONATE
Your gift to our nonprofit supports scientific understanding

Related Articles

Related articles from Annual Reviews

- High-Field Dynamic Nuclear Polarization
Björn Corzilius, *Annual Review of Physical Chemistry*, 2020
- Nonequilibrium Aspects Of Integrable Models
Colin Rylands et al., *Annual Review of Condensed Matter Physics*, 2020
- Majorana Zero Modes In Networks Of Cooper-Pair Boxes: Topologically Ordered States And Topological Quantum Computation
Yuval Oreg et al., *Annual Review of Condensed Matter Physics*, 2020
- Machine-Learning Quantum States In The NISQ Era
Giacomo Torlai et al., *Annual Review of Condensed Matter Physics*, 2020


Related articles from other journals

- Facebook Joins NYU In Artificial Intelligence Lab (Update) [↗](#)
Phys.org, 2013
- Engineers Use Graph Networks To Accurately Predict Properties Of Molecule Crystals [↗](#)
Phys.org, 2019
- FPGA Implementation Of Neural Network Accelerator For Pulse Information Extraction In High Energy Physics [↗](#)
Jun-Ling Chen et al., *Nuclear Science and Techniques*, 2020
- Neural Network As A Function Approximator And Its Application In Solving Differential Equations [↗](#)

[PDF](#) [Help](#)

ANNUAL REVIEWS

Article View and Citation Download

 Full Text HTML

 Download PDF

The Effects of Changing Weather on Public Health

Annual Review of Public Health
Vol. 21:271-307 (Volume publication date May 2000)
<https://doi.org/10.1146/annurev.publhealth.21.1.271>

Jonathan A. Patz¹, David Engelberg², and John Last³

¹Department of Environmental Health Sciences, Johns Hopkins School of Public Health, Baltimore, Maryland 21205-2179; e-mail: jpatz@jhsp.edu
²Department of Epidemiology, University of Ottawa, Ottawa, Ontario K1H 8M5, Canada; e-mail: jmlast@uottawa.ca
³Vancouver Hospital and Health Sciences Centre, University of British Columbia; e-mail: davidengelberg@hotmail.com

[Download PDF](#) [Article Metrics](#) [Permissions](#) [Reprints](#) [Download Citation](#) [Citation Alerts](#)

Sections

ABSTRACT

KEY WORDS

INTRODUCTION

PREVAILING WEATHER IN THE CONTEXT OF GLOBAL ECOSYSTEM CHANGE AND HUMAN HEALTH

WEATHER AND CLIMATE

INCREASING CONCERNS ABOUT CLIMATE CHANGE AND THEIR POSSIBLE IMPACTS ON PUBLIC HEALTH

SUMMARY OF CURRENT AND ANTICIPATED PUBLIC HEALTH EFFECTS OF CHANGING WEATHER AND CLIMATE

PREVENTION OF WEATHER-RELATED THREATS TO PUBLIC HEALTH

RESEARCH CHALLENGES

CONCLUSIONS

LITERATURE CITED

Abstract

■ **Abstract** Many diseases are influenced by weather conditions or display strong seasonality, suggestive of a possible climatic contribution. Projections of future climate change have, therefore, compelled health scientists to re-examine weather/disease relationships. There are three projected physical consequences of climate change: temperature rise, sea level rise, and extremes in the hydrologic cycle. This century, the Earth has warmed by about 0.5 degrees centigrade, and the mid-range estimates of future temperature change and sea level rise are 2.0 degrees centigrade and 49 centimeters, respectively, by the year 2100. Extreme weather variability associated with climate change may especially add an important new stress to developing nations that are already vulnerable as a result of environmental degradation, resource depletion, overpopulation, or location (e.g. low-lying coastal deltas). The regional impacts of climate change will vary widely depending on existing population vulnerability. Health outcomes of climate change can be grouped into those of: (a) direct physical consequences, e.g. heat mortality or drowning; (b) physical/chemical sequelae, e.g. atmospheric transport and formation of air pollutants; (c) physical/biological consequences, e.g. response of vector- and waterborne diseases, and food production; and (d) sociodemographic impacts, e.g. climate or environmentally induced migration or population dislocation. Better understanding of the linkages between climate variability as a determinant of disease will be important, among other key factors, in constructing predictive models to guide public health prevention.

Key Words

climate change ; global warming ; heat waves ; waterborne disease ; air pollution ; vectorborne disease .

INTRODUCTION

Environmental health concerns have traditionally focused on toxicological or infectious risks to human health from local factors. As we enter the next millennium, it is becoming ever more evident that disturbances of natural ecological systems pose new risks to health. During the past 2 decades, population growth and the spread of industrialization, which

Jonathan A. Patz¹, David Engelberg², and John Last³

¹Department of Environmental Health Sciences, Johns Hopkins School of Public Health, Baltimore, Maryland 21205-2179; e-mail: jpatz@jhsp.edu
²Vancouver Hospital and Health Sciences Centre, University of British Columbia; e-mail: davidengelberg@hotmail.com
³Department of Epidemiology, University of Ottawa, Ottawa, Ontario K1H 8M5, Canada; e-mail: jmlast@uottawa.ca

Key Words climate change, global warming, heat waves, waterborne disease, air pollution, vectorborne disease

■ **Abstract** Many diseases are influenced by weather conditions or display strong seasonality, suggestive of a possible climatic contribution. Projections of future climate change have, therefore, compelled health scientists to re-examine weather/disease relationships. There are three projected physical consequences of climate change: temperature rise, sea level rise, and extremes in the hydrologic cycle. This century, the Earth has warmed by about 0.5 degrees centigrade, and the mid-range estimates of future temperature change and sea level rise are 2.0 degrees centigrade and 49 centimeters, respectively, by the year 2100. Extreme weather variability associated with climate change may especially add an important new stress to developing nations that are already vulnerable as a result of environmental degradation, resource depletion, overpopulation, or location (e.g. low-lying coastal deltas). The regional impacts of climate change will vary widely depending on existing population vulnerability. Health outcomes of climate change can be grouped into those of: (a) direct physical consequences, e.g. heat mortality or drowning; (b) physical/chemical sequelae, e.g. atmospheric transport and formation of air pollutants; (c) physical/biological consequences, e.g. response of vector- and waterborne diseases, and food production; and (d) sociodemographic impacts, e.g. climate or environmentally induced migration or population dislocation. Better understanding of the linkages between climate variability as a determinant of disease will be important, among other key factors, in constructing predictive models to guide public health prevention.

Download Citation

The Effects of Changing Weather on Public Health
Jonathan A. Patz, David Engelberg, John Last
Annual Review of Public Health 2000 21:1, 271-307

- Format
- ☒ RIS (ProCite, Reference Manager)

☐ EndNote

☐ BibTex

☐ Medlars

☐ RefWorks

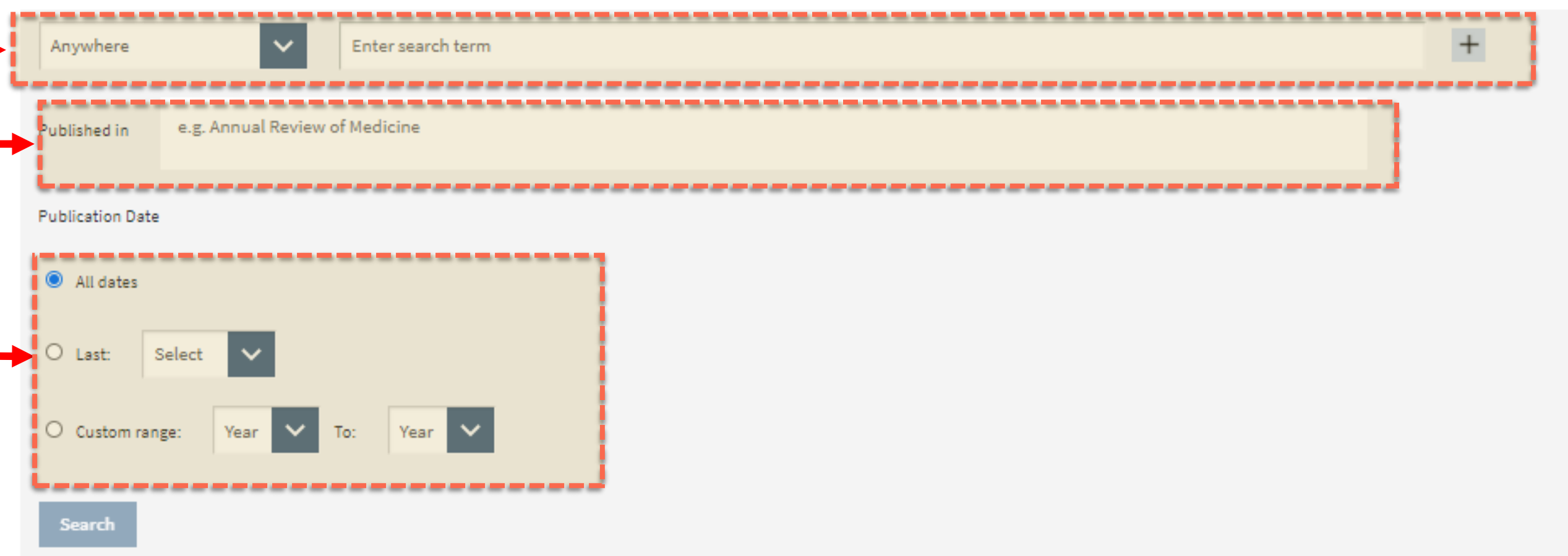
ANNUAL REVIEWS

Search and Filter

Search query

Choose journal

Filter by date



The search and filter interface for Annual Reviews includes the following components:

- Search query:** A text input field with a dropdown menu set to "Anywhere" and a search button.
- Choose journal:** A dropdown menu labeled "Published in" with the example "e.g. Annual Review of Medicine".
- Filter by date:** A section with three options: "All dates" (selected), "Last:" with a "Select" dropdown, and "Custom range:" with "Year" and "To:" dropdowns.
- Search button:** A blue button labeled "Search".



The filter results sidebar displays the following categories and counts:

- PUBLICATION**
 - Animal Biosciences (1)
 - Anthropology (6)
 - Astronomy And Astrophysics (1)
 - Chemical And Biomolecular Engineering (2)
 - Earth And Planetary Sciences (20)
 - MORE (17)
- AUTHOR**
 - Patz, Jonathan A (3)
 - Agrawal, Arun (2)
 - Carpenter, Stephen R (2)
 - Cazenave, Anny (2)
 - Chuang, Patrick Y (2)
 - MORE (95)
- PUBLICATION DATE**
 - 1992
 - 2020
 - Apply
- CATEGORY**
 - Supplemental Video (6)
- KEYWORD**
 - Adaptation (9)
 - Biodiversity (8)
 - Migration (8)
 - Deforestation (7)
 - Energy (7)
 - MORE (94)

Red arrows point from the labels "Publication", "Authors", "Publication date", "Category", and "Keywords" to their respective filter sections.



ANNUAL REVIEWS

Alerts

New issues alert

Email Format

Citation email alert

☒ Annual Review of Sociology

☐ [Annual Review of Statistics and Its Application](#)

☐ Annual Review of Virology

☐ Annual Review of Vision Science

Choose an Email Format

☒ Plain Text ☐ HTML

Submit

Citation Email Alerts

☐ Select all

Delete

Sort By:

Publication

Article title	Publication	Publication date
<input type="checkbox"/> Climate and Culture: Anthropology in the Era of Contemporary Climate Change	Annual Review of Anthropology Volume 40, Issue 1 pp. 175-194	26 Sep 2011
<input type="checkbox"/> The Future of Arctic Sea Ice	Annual Review of Earth and Planetary Sciences Volume 40, Issue 1 pp. 625-654	02 May 2012



NATIONAL RESEARCH
UNIVERSITY

library.hse.ru

E-mail.: aofedorov@hse.ru

Address: Moscow, 11 Pokrovsky blvd., office R116