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Annotated Bibliography of Ethical Issues in Physics: General Topics

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Ethical Issues in Physics
Bibliography assembled by
Marshall Thomsen
Eastern Michigan University
February 2012
General Ethics Resources and those not neatly fitting into the
above groups

GEN
Science and Engineering Ethics
Volume 17, Number 1 / March 2011, pp. 197-199
Adil Shamoo and David Resnik: The Responsible Conduct of Research
Gary Santillanes
Book Review
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CLI, GEN
Physics Today—July 2010
Volume 63, Issue 7, p. 10
Scientific declarations best left to scientists
B. K. Ridley
A letter to the editor indicating that scientists, not scientific societies, should make scientific declarations.

Physics Today—September 2010
Volume 63, Issue 9, pp. 9-10
Scientific societies should speak out
Alfred B. Bortz
Letter in response to Ridley’s letter

Physics Today—March 2011
Volume 64, Issue 3, p. 8
Scientists offer opinions about their opinions
James M. Kent
Letter in response to Bortz’s and Ridley’s letters

Physics Today—March 2011
Volume 64, Issue 3, p. 8
Scientists offer opinions about their opinions
Brian Sutcliffe
Letter in response to Ridley’s letter

END LINK

GEN
Science and Engineering Ethics
Volume 15, Number 4 / December, 2009, pp. 577-600
Educating the Humanitarian Engineer
Kevin M. Passino
The author describes the obligations of engineers to perform public service and then discusses how service projects can be integrated into the curriculum to provide students with the opportunity to engage in public service.

Copyright 2012 Marshall Thomsen
An overview of a conference and of this special issue of SEE on the topic of whether certain areas of scientific research should be forbidden.

This article looks at the definition of “rights” and explores political and legal aspects of the right to research. It notes that society can restrict research in a given area not only by banning it, but also by merely denying support for it.

In his commentary on the above paper, this author points out that scientists must also deal with corporate influences on the direction of research.
The Problems with Forbidding Science
Gary E. Marchant and Lynda L. Pope
The authors argue that restrictions on scientific research are best imposed by scientists themselves: they have a demonstrable interest in maintaining the public trust and they can respond more quickly and effectively to evolving fields of inquiry.

Scientific Self-Regulation—So Good, How Can it Fail?
Commentary on “The Problems with Forbidding Science”
Patrick L. Taylor
This commentary on the preceding paper contrasts successful self-regulation of stem cell research to less than successful self regulation in issues related to conflict of interest.

What is science?
Helen Quinn
A fundamental understanding of what is meant by science lays the foundation for a discussion of ethics in science and for talking to the general public about science.
Testing relativity from the 1919 eclipse—a question of bias
Daniel Kennefick
A discussion of the analysis and re-analysis of data from an early experiment testing a key prediction of general relativity provides a good case study on the possible role of bias in interpretation of data.

Study of 1919 eclipse sparks talk of terms and terminology
Cyril Galvin and George L. Murphy

A study at a Croatian medical school indicated a measurable decrease in plagiarism when students were informed ahead of time that their essays would be run through software designed to detect plagiarism.
A focus group of mid-career members of the life sciences community was used to investigate the negative consequences of competition in science, such as game-playing, decline in openness, and abuse of the peer review process.

Remembering the Oil-Drop Experiment
Michael F. Perry
Looks at conflicting statements about who was responsible for what aspects of the famous oil drop experiment.

This article can serve as a reminder to students on why open debate is important in science. The physics community should be structured to allow any idea—no matter what its source—to be challenged on scientific grounds. It also provides a more realistic picture than ordinarily given in textbooks of how science evolves.
Creationist Wave Hits Volcanoes of the Deep Sea
Jim Dawson
An IMAX movie with references to evolution and earth history dating back hundreds of millions of years has had some difficulty getting onto the screens of some museum IMAX theaters.

Scientists Boycott Kansas Antievolution Hearings
Jim Dawson
One paragraph article on scientists objecting to the premise of the hearing that evolution is a matter of expert opinion as opposed to a theory backed up by data.

Evolution Wars Show No Sign of Abating
Jim Dawson

Middle Ground in the Creationism Debate?
Fred E. Camfield

Evolution Wins in Pennsylvania, Loses in Kansas
Jim Dawson
Debunked! ESP, Telekinesis, and Other Pseudoscience
George Charpak, Henri Broch, and James Randi, Reviewer
Book Review

After Serious Accident, SLAC Experiments Remain Shut Down and DOE Report Faults Lab's Safety Oversight
Bertram Schwarzschild
At issue is whether safety standards were sacrificed in an effort to focus on producing results more rapidly.

Computational Science Demands a New Paradigm
Douglass E. Post and Lawrence G. Votta
Theorists and experimentalists have standard techniques for checking and rechecking their work. These authors argue that the changing face of computational physics requires new standards for what is meant by exercising due care in computational physics.

Validating the Need to Validate Code
Thomas P. Sheahen, Craig Bolon, Rudolf Eigenmann, Josip Loncaric, Bob Eisenberg, R. Casanova Alig, Denes Marton, Douglass E. Post, and Lawrence G. Votta
This article reports on one of the few surveys on the topic of ethics within the physics community. Particular attention is paid to the treatment of subordinates in the academic community.

The article discusses the shift in emphasis from punishing wrongdoing to promoting research integrity. The author is the director of the Online Ethics Center for Engineering and Science.

This reprint of a 1952 Physics Today article argues that there is no special ethics for science. The key is to recognize when a value-based decision is being made.
Scientific misconduct and findings against graduate and medical students
Debra M. Parrish
An overview of cases closed by NSF and NIH involving graduate students shows that most often they are found to have falsified or fabricated data.

Eight-dimensional methodology for innovative thinking about the case and ethics of the mount graham, large binocular telescope project
Rosalyn W. Berne and Daniel Raviv
When construction of an observatory is planned for sacred Native American grounds, astronomers confront some issues they are not used to dealing with.

Does academic dishonesty relate to unethical behavior in professional practice? An exploratory study
Donald D. Carpenter, Trevor S. Harding, Cynthia J. Finelli and Honor J. Passow
This exploratory study of engineering students looks at the correlation between the likelihood of their self-reporting cheating in the academic environment and their self-reporting temptations to break workplace rules.

Responsible Conduct of Research
Adil E. Shamoo, David B. Resnik, and Myriam P. Sarachik, Reviewer
Book Review
The Contentious Role of a National Observatory

While the early part of this article is mostly historical, towards the end it raises interesting questions on how limited scientific resources (such as observatory time) should be distributed.

W. Patrick McCray

National Observatories: Contention Continues

William E. Howard III, Cameron Reed, and W. Patrick McCray

The authors review a large number of professional codes, discussing their scope and purpose. Common themes as well as elements peculiar to a specific profession are identified.

Science and Engineering Ethics

Volume 9, Number 2 / June, 2003, pp. 171-179

Developing a code of ethics for academics

Commentary on ‘ethics for all: Differences across scientific society codes’ (Bullock and Panicker)

Celia B. Fisher

The author discusses an possible aspirational code of ethics for those in academia and what changes in the code would be needed to turn it into an enforceable one.
Arrogance—A Dangerous Weapon of the Physics Trade?
J. Murray Gibson
A wide-ranging opinion piece that its on how physicists relate to society and to each other, and how physicists deal with ethical issues.

Readers Respond About Arrogance, Confidence, Brilliance, Humility, and Stupidity

Sniffer Plane Secrets and Political Courage
Alan J. Scott
While this article straddles the fence between science/society issues and political analysis, it does serve to illustrate the importance of openness in scientific inquiry by examining a celebrated case of fraud in military research.
Six domains of research ethics
A heuristic framework for the responsible conduct of research
Kenneth D. Pimple
The author argues that responsible conduct of research can be broken up into six domains: scientific integrity, collegiality, protection of human subjects, animal welfare, institutional integrity, social responsibility. The appendices contain very useful reference information on terminology related to the responsible conduct of research.
Commentary on “Six domains of research ethics”
Vivian Weil

Science and Engineering Ethics
Volume 8, Number 2 / June, 2002, pp. 229-234
Beyond fabrication and plagiarism: The little murders of everyday science
Commentary on “Six domains of research ethics”
Michael J. Zigmond and Beth A. Fischer

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GEN
Physics Today -- April 2002
Volume 55, Issue 4, pp. 16-18
Skepticism Greets Claim of Bubble Fusion
Barbara Goss Levi
Interesting illustration of active scientific debate.

GEN
Science and Engineering Ethics
Volume 8, Number 1 / March, 2002, pp. 43-57
Ethics and science: Educating the public
R. Brownhill and L. Merricks
Looks at a debate over fundamental ethical issues in science that took place in the first half of the twentieth century, including issues such as to what extent are scientists responsible for how their research is used.

GEN
Physics Today -- March 2002
Volume 55, Issue 3, p. 63
The Politics of Excellence: Behind the Nobel Prize in Science
Robert Marc Friedman and Helge Kragh, Reviewer
Book Review
Nine Crazy Ideas in Science: A Few Might Even Be True
Robert Ehrlich and William H. Ingham, Reviewer
Book Review

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Science and Engineering Ethics
Volume 7, Number 4 / December, 2001, pp. 507-520
Influences on the ethical beliefs of graduate students concerning research
Robert L. Sprague, Jessica Daw and Glyn C. Roberts
Report on a survey of faculty and students at one Midwestern university (across a wide range of departments). Includes extensive quotes from open-ended questions.

Science and Engineering Ethics
Volume 7, Number 4 / December, 2001, pp. 521-524
Mentoring and ethical beliefs in graduate education in science
Rachelle D. Hollander
Commentary on ‘influences on the ethical beliefs of graduate students concerning research’ (Sprague, Daw and Roberts)

END LINK

Science and Engineering Ethics
Volume 7, Number 3 / September, 2001
Serious misapplications of military research: Dysfunction between conception and implementation
Jacques G. Richardson
An extensive list of scientists working in a military setting with safety concerns being minimized in the pursuit of knowledge.
GEN
Science and Engineering Ethics
Volume 6, Number 4 / December, 2000, pp. 435-442
Ethical issues in communicating science
Jinnie M. Garreu and Stephanie J. Bird
Lays out a framework for discussion of issues related to communication within the scientific community as well as between scientists and society at large.

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GEN
Bulletin of the Atomic Scientists
56.2 (March 2000): pp. 42-46
Edwin Lyman and Steven Dolley.
Accident prone (analysis of the accident at the Tokaimura nuclear facility in Japan)
This article is useful not only in the context of a study of the nuclear energy fuel cycle but also for its illustration of the perils of cutting corners in safety procedures.

Bulletin of the Atomic Scientists
56.3 (May 2000): p4
Perspective, please (Letter)
Bertram Wolfe

Bulletin of the Atomic Scientists
56.5 (September 2000): p3.
Special means special (letter)
Dean E. Abrahamson

END LINK