July, 2020

**ALAN L. PORTER**
**Co-Director, Program in Science, Technology & Innovation Policy (STIP)**
**Professor Emeritus: Industrial & Systems Engineering, and Public Policy, Georgia Tech**
**Director, R&D, Search Technology, Inc.**

ID's: ORCID: https://orcid.org/0000-0002-4520-6518; Scopus: 7202005128
Many of my publications are posted at: http://www.researchgate.net/profile/Alan_Porter4
Publons – ResearcherID A-7013-2009
**aporter@searchtech.com; or alan.porter@isye.gatech.edu**

## EDUCATIONAL BACKGROUND:

| | | | |
|---|---|---|---|
| Ph.D. | 1972 | University of California-Los Angeles | Eng. Psychology |
| M.A. | 1968 | University of California-Los Angeles | Psychology |
| B.S.(hons.) | 1967 | California Institute of Technology | Chemical Engineering |

## EMPLOYMENT HISTORY:

| | | |
|---|---|---|
| Director, R&D | Search Technology, Inc. | 2002- |
| Professor Emeritus | GT School of Public Policy and<br>School of Industrial & Systems Engineering | 2002 - |
| Professor | GT School of Public Policy | 1990 - 2001 |
| Associate Chair | Georgia Tech (GT) School of Public Policy | 1997-99 |
| Co-Director | Program in Science, Technology & Innovation Policy | 2011 - |
| Director | GT Technology Policy & Assessment Ctr. | 1989 -2001 |
| Co-Director | | 1983-89; 2001- |
| Professor | GT School of Ind. & Systems Engr. (ISyE) | 1986- 2001 |
| Associate Professor | | 1978-86 |
| Assistant Professor | | 1975-78 |
| Acting Director | GT Management of Technology Program | 1991-1993 |
| Adj. Assoc. Prof. | GT School of Social Sciences | 1982-89 |
| Instructor | University of Washington | 1973 |
| Res. Assistant Prof. | University of Washington, Engineering | 1974 |
| Research Associate | | 1972-74 |
| Instructor | Glendale Community College, Psychology | 1971 |
| Biology Technician | Sepulveda V.A. Hospital, California | 1970 |
| Computer Programmer | Moulton Data Systems, No. Hollywood, CA | 1969-1970 |
| Chemical Engineer | Shell Chemical Company | 1967(Summer) |
| | Shell Oil Co., Bakersfield, CA | 1966 (Summer) |

## CURRENT FIELDS OF INTEREST:

Technology Opportunities Analyses

## I. TEACHING

### A. Course Taught

| Quarter | Course Number | Course | No. of Students | Effective-ness Teaching |
|---|---|---|---|---|
| **University of Washington** | | | | |
| Winter 1974 | SMT 498A | Social Management of Technology | 5 | |
| | | Technology Assess. | 12 | |
| Spring 1975 | SMT 498A/ ENGR 498A | Policy Methods Applied Technology | 10 | |
| | N406L | The Quality of Life (Evening Division) | 35 | |
| | Env. St. 498H | Puget Sound Regional Growth: Ethical Implications | 6 | |
| **Georgia Tech** | | | | |
| Winter 1975 | ISyE 4056S | Technological Forecasting | 25 | |
| Spring 1975 | ISyE 4897S | Technology Assessment | 12 | |
| Fall 1975 | ISyE 4053 | Socio-Economic Systems Analysis | 21 | |
| Winter 1975 | ISyE 4053 | Socio-Economic Systems Analysis | 10 | |
| | ISyE 4157 | Evaluation of Complex Systems | 8 | |
| Spring 1976 | ISyE 4897 | Technology Assessment | 49 | |
| Fall 1976 | ISyE 4053 | Socio-Economic Systems Analysis | 14 | |
| Winter 1976 | ISyE 4757 | Technology Assessment | 16 | |
| | ISyE 4053 | Socio-Economic Systems Analysis | 10 | |
| Spring 1977 | ISyE 2001 | Projects | 8 | |
| Summer 1977 | ISyE 4757 | Technology Assessment | 11 | |
| Winter 1978 | ISyE 4056 | Technology Forecasting | 44 | |
| Spring 1978 | ISyE 4757 | Technology Assessment | 24 | |
| Summer 1978 | ISyE 8100 (new) | Evaluation of Organizational Innovation: Experimental & Quasi-Experimental Design | 13 | 4.1 |
| Fall 1978 | ISyE 3105 | Organizational Structures | 46 | |
| | ISyE 3105 | Organizational Structures | 43 | |
| Winter 1979 | ISyE 4056 | Technological Forecasting | 43 | |
| Spring 1979 | ISyE 4757 | Technology Assessment | 60 | |
| Summer 1979 | ISyE 8100 | Quasi-Experimental Designs | 6 | 4.6 |
| Fall 1979 | ISyE 4053 | Socio-Ec. Systems Analysis | 35 | |
| Winter 1980 | ISyE 4056 | Technological Forecasting | 64 | |
| Spring 1980 | ISyE 4757 | Technology Assessment | 44 | |
| Summer 1980 | ISyE 6409 | Quasi-Experimental Design | 6 | 4.2 |
| Fall 1980 | ISyE 3105 | Organizational Structures | 49 | 3.9 |
| | ISyE 4053 | Socio-Economic Sys. Analysis | 41 | 2.7 |
| Winter 1981 | ISyE 4056 | Technological Forecasting | 59 | |
| | ISyE 3115 | ISyE Measurements | 56 | |
| Spring 1981 | ISyE 4757 | Technology Assessment | 56 | |
| | ISyE 3115 | ISyE Measurements | 65 | |
| Summer 1981 | ISyE 6409 | Quasi-Experimental Design | 5 | 4.2 |
| Fall 1981 | ISyE 4053 | Socio-Economic Sys. Analysis | 44 | |
| | ISyE 3115 | ISyE Measurements | 45 | |
| Winter 1982 | ISyE 4056 | Technological Forecasting | 50 | 3.5 |
| | ISyE 3115 | ISyE Measurement | 48 | 3.4 |
| Spring 1982 | ISyE 4056 (new) | Data Analysis II & Forecasting (taught 1/3 regression & stat | 24 | |

| | | | | |
|---|---|---|---|---|
| | | Analysis) | | |
| | ISyE 4757 | Technology Assessment | 63 | 3.5 |
| | ISyE 3105 | Organizational Structures | 57 | 3.6 |
| Summer 1982 | ISyE 6409 | Quasi-Experimental Design | 9 | 4.0 |
| Fall 1982 | ISyE 4053 | Socio-Economic Systems Analysis | 25 | 4.1 |
| Winter 1983 | ISyE 4756 | Technological Forecasting | 45 | 3.5 |
| Spring 1983 | ISyE 4757 | Technology Assessment | 50 | |
| Summer 1983 | ISyE 3115 | ISyE Measurements | 46 | 3.9 |
| Winter 1984 | ISyE 4750 | Technology Forecasting | 49 | 4.1 |
| Spring 1984 | ISyE 4757 | Technology Assessment | 49 | 3.7 |
| | ISyE 6101 | Modern Organizations | 29 | 4.1 |
| Summer 1984 | ISyE 6409 | Quasi-experimental Statistics | 6 | 4.3 |
| Fall 1984 | ISyE 6101 | Modern Organizations | 23 | 3.9 |
| Winter 1985 | ISyE 6799 | Quasi-experimental Design | 20 | 4.3 |
| | ISyE 4756 | Tech Forecasting | 41 | 3.4 |
| Spring 1985 | ISyE 4757 | Technology Assessment | 42 | 3.4 |
| | ISyE 6101 | Modern Organizations | 36 | 4.4 |
| Fall 1985 | ISyE 9000 | 7000, 4991, etc. Thesis & special problems courses | | |
| Winter 1986 | ISyE 4756 | Technology Forecasting | 52 | 3.8 |
| | ISyE 6799 | Quasi-Experimentation | 13 | |
| Spring 1986 | ISyE 4757 | Technology Assessment | 52 | |
| | ISyE 6101 | Modern Organizations | 31 | 3.6 |
| Fall 1986 | ISyE 3105 | Organizational Structures | 47 | 4.2 |
| | ISyE 6101 | Modern Organizations | 38 | 4.0 |
| Winter 1987 | ISyE 4756 | Technology Forecasting | 57 | |
| Spring 1987 | ISyE 4757 | Technology Assessment | 48 | 3.4 |
| | ISyE 6101 | Modern Organizations | 37 | 4.0 |
| Fall 1987 | ISyE 3105 | Organizational Structures | 49 | 4.2 |
| | ISyE 6101 | Modern Organizations | 43 | 4.1 |
| Winter 1988 | ISyE 4756 | Technology Forecasting (NTU too) | | 3.0 |
| | ISyE 3105 | Organizational Structures | | 4.1 |
| Spring 1988 | ISyE 4757 | Technology Assessment | | |
| | ISyE 6101 | Modern Organizations | | 4.1 |
| Fall 1988 | ISyE 3105 | Organizational Structures | | 4.2 |
| | ISyE 6101 | Modern Organizations | | 4.2 |
| Winter 1989 | ISyE 4756 | Technology Forecasting | 40 | 3.8 |
| | ISyE 6101 | Modern Organizations | 40 | 4.6 |
| Spring 1989 | ISyE 4757 | Technology Assessment | 35 | 3.5 |
| | ISyE 6101 | Modern Organizations | 41 | |
| Summer 1989 | ISyE 3105 | Organizational Structures | 52 | 4.0 |
| Fall 1989 | ISyE 6101 | Modern Organizations | 46 | 4.2 |
| Winter 1990 | ISyE 4756 | Technology Forecasting | 35 | 4.1 |
| | ISyE 6799 | Quasi-Experimentation | 16 | 4.2 |
| Spring 1990 | ISyE 4757 | Technology Assessment | 40 | 4.1 |
| Summer 1990 | ISyE 3010 | Human-Machine Systems | 67 | 3.4 |
| Fall 1990 | ISyE 6101 | Modern Organizations | 44 | 4.0 |
| Winter 1991 | ISyE/SOC 4756 | Technology Forecasting | 45 | |
| Spring 1991 | ISyE/PST 4757/PubP 8120 | Technology Assessment | 35 | |
| Summer 1991 | ISyE/PubP 8101 | Analysis of Emerging Tech | 14 | |
| Fall 1991 | ISyE/Mgt/PubP 6771 | Mgt of Technology I | 42 | 3.8 |
| Winter 1992 | ISyE 6101/PubP 6014 | Modern Organizations | 69 | 4.0 |
| Summer 1992 | ISyE 8101 | Analysis of Emerging Tech | 12 | 4.3 |
| Fall 1992 | ISyE 6101/PubP 6014 | Modern Organizations | 43 | 4.1 |
| | ISyE/Mgt 6775 | MOT/CIMS Seminar | 98 | |

| | | | |
|---|---|---|---|
| Winter 1993 | PubP 6416 ISyE 4756 Tech Forecasting | 42 | 3.9 |
| | ISyE/Mgt 6775 MOT/CIMS Seminar | 61 | |
| | ISyE 8704/Mgt 8401 MOT Project Initiation | 16 | |
| Spring 1993 | ISyE/Mgt 6775 MOT/CIMS Seminar | 50 | |
| | ISyE 8704/MGT 8401 MOT Project Initiation | 16 | |
| Summer 1993 | ISyE 8100 Analysis of Emerging Technologies [Satellite course-NTU MOT; GIT] | 51 | |
| Fall 1993 | ISyE/PubP/MGT 6771 A & B Mgt. of Technology I (2 sections) | 31, 35 | 3.9 |
| | ISyE 6101/PubP 6014 Modern Organizations | 42 | 4.1 |
| Spring 1994 | ISyE 6101/PubP 6014 Modern Organizations | 32 | 4.0 |
| Summer 1994 | PubP 8101&8106/MGT 8403 Analysis of Emerging Technologies [Satellite course-NTU MOT; GIT] | 55 | 4.4 |
| Fall 1994 | ISyE 6101 Modern Organizations | 35 | 3.9 |
| Winter 1995 | ISyE/PubP 6777 Analysis - Emerging Technologies | 40 | |
| Fall 1995 | ISyE 6101 Modern Organizations | 35 | 4.2 |
| | ISyE 8100/PubP8140a/CS8113e/Arch8143c/Psy8504 Information Revolution & Consequences Seminar | 35 | 4.0 |
| Winter 1996 | ISyE/PubP/MGT 6777 Analysis - Emerging Tech | 62 | |
| Fall 1996 | ISyE 6101 [PubP 6014] Modern Organizations | 37 | 4.1 |
| | MGT 6115 [EMS-MOT] Analysis of Emerging Tech | 22 | 9.4/10 |
| Winter 1997 | ISyE/PubP 4756 Tech Forecasting | 22 | |
| | ISyE/PubP/MGT 6777/NTU Analysis - Emerging Tech | 42 | 4.3 |
| | NTU MT 761/NTU MB713 Analysis - Emerging Tech | 15 | 6.0/7 |
| Fall 1997 | ISyE 6101 [PubP 6014] Modern Organizations | 34 | 4.6 |
| | MGT 6115 [EMS-MOT] Analysis of Emerging Tech | 32 | 4.4 |
| | ISyE /PubP/Mgr 6777 Analysis - Emerging Tech | 37 | |
| Fall 1998 | ISyE 6101 [PubP 6014] Modern Organizations | 39 | 3.9 |
| | MGT 6115 (EMS-MOT) Analysis of Emerging Tech | 43 | |
| | ISyE/PubP 6777 [NTU MB713, MT761] Anal of E T | 59 | 4.3 |
| Winter 1999 | IsyE/PubP 4756 Tech Forecasting | 30 | 4.2 |
| Fall 1999 | IsyE 6101 [PubP 6014] Modern Organizations | 37 | 4.0 |
| | IsyE/PubP 6777 [NTU MB713, MT761] Anal of E T | 43 | 4.5 |
| | MGT 6115 [EMS-MOT] Analysis of Emerging Tech | 48 | 5.8/10 |
| Summer 2000 | MGT 6115 [EMS-MOT] Analysis of Emerging Tech | 44 | |
| Fall 2000 | IsyE 6101 [PubP 6014] Modern Organizations | | |
| | IsyE/PubP 6777 [NTU MB713, MT761] Anal of E T | | |
| Spring 2001 | Analysis of Emerging Technologies seminar | | |
| Fall 2001 | Analysis of Emerging Technologies seminar [PubP6777, NTU MT761] | | |
| Spring 2002 | Analysis of Emerging Technologies [TU Delft - TBM] | | |

**B. <u>Continuing Education (Workshops)</u>**

1. Technology Forecasting and Assessment; and Impact Assessment, 1982.
2. Lecturer and Engineering Resource Advisor, Sloan Foundation sponsored sessions, technological literacy for liberal arts educators (RETLA), 1983-.
3. Management of Information Technology, Spring, 1986.
4. Technology Development & Assessment, Mexico City, Nov., 1992.
5. Management of Emerging Technologies, Pretoria, Apr., 1993.
6. Technology Monitoring, Forecasting & Assessment, Gabarone, Botswana, April 1993.
7. Management of Emerging Technologies, Atlanta, October 1993.
8. Technology Management for Development, Mexico City, November 1993.
9. Managing Technology-based change, Merida, Mexico, November 1993.
10. Management of Technology, Monterey Tech, Monterey, Mexico, March, 1994.
11. Technology Monitoring & Forecasting, Universidad de Anahuac, Mexico City, Mexico, September, 1994.
12. Emerging Technologies, Universidad de Anahuac, Mexico City, Mexico, April, 1995.
13. Information Engineering, Universidad de Anahuac, Mexico City, May, 1996.

14. Analysis of Emerging Technologies, Exec. M.S. in Mgt of Tech, Ga. Tech., Fall, 1996.
15. Competitive Technological Intelligence, Ga Tech, Fall, 1998.
16. Competitive Technological Intelligence, GTRI, Summer, 1999.
17. Using Technology Information for Technology Forecasting, Mexico City, 2002.
18. Competitive Technical Intelligence, Brasilia, 2005
19. Second International Seminar on Competitive Intelligence, Brasilia, 2006
20. Technological Intelligence and Foresight, Bogota, 2006
21. Analysis of Emerging Technologies, Helsinki, 2006
22. Tech Mining, Center for Innovation Management Studies (North Carolina State University), Williamsburg, VA, June, 2008.
23. Tech Mining, VantagePoint, and Science Overlay Mapping, Pre-conference Workshop, The Atlanta Conference on Science and Innovation Policy, Atlanta, 2009 (October).
24. Tech Mining for R&D Management, 2-day Workshop, Campinas, Brazil, 2010 (Sep.)
25. Porter, A.L., Tech Mining and Mapping Research Networks, Innovation Management 2012, Beijing Institute of Technology, May, 2012.
26. Measuring & Mapping Interdisciplinarity of a Research Program, NIH Portfolio Analysis Symposium, July 24, 2012

**C. Curriculum Development**

1. Primary role in the development of the technology assessment course (variously, ISyE 4897, PHS 4949, EE 4803, and now cross-listed ISyE/PST 4757).
2. Primary role in the development of the quasi-experimental design course (ISyE, 6409); now revised completly as ISyE/Psy 6799.
3. Primary author of A Guidebook for Technology Assessment and Impact Analysis, the most widely adopted text in the technology assessment field (among about a half-dozen of which I am aware.
4. Co-Editor of Science, Technology, and National Policy, used in graduate classes here (in the Technology and Science Policy Program) and elsewhere.
5. Modularized the technology forecasting course (1982) to give students flexibility in organizing the ordering and timing of the learning assessments, with good success. Offered in the National Technological University (1987).
6. Developed new course, ISyE/Mgt PubP 6771, "Management of Technology: The External Environment," for new Graduate Certificate Program in MOT, 1990.
7. Led revision of MOT curriculum to create Project Initiation course (ISyE/Mgt 6770) and combined MOT/CIMS seminars as ISyE/Mgt 6775 and 6776, 1993.
8. Developed new course, ISyE/Mgt/PubP 6777, Analysis of Emerging Technologies, for NTU Management of Technology Program and as Georgia Tech elective, 1991-1994; new permanent course, 1994; offered with 11 multimedia lectures [CD-ROM], 1996
9. Co-organizer (with Wm. Read), special grad/business seminar, ISyE 8100/PubP/CS/Psy/Arch, Information Revolution & Its Consequences, 1995.
10. With "JumpStart" support, rework Analysis of Emerging Technologies course into modules, with internet-based, self-paced learning, 1999-2000.

**D. Individual Student Guidance**

2. (a) L.P. Rees, Ph.D., Fall 1980, "Statistical methods and public policy analysis" (co-Advisor with R.G. Heikes)
   (b) C.Y. Park, Ph.D., Fall, 1982, "Properties of estimators in the time series models with exogenous variables and autocorrelated noise" (co-advisor with R.G. Heikes)
   (c) H. Xu, Ph.D., Summer, 1995, "Forecasting Innovation Diffusion: A Modeling Approach" (co-advisor with R.G. Heikes)
   (d) C. Courseault, passed Comps, Spring, 2000
   (e) A. Kongthon, passed Comps, Fall, 2000

3. (a) C.Y. Park, M.S. Summer, 1978, "Analysis of the Appalachian Development Highway Program as a Policy Intervention"

(b) J.S. Tiller, M.S., Fall, 1980, "Development of a technique to utilize input-output analysis in technology assessment"
(c) E.M. Tornquist, III, M.S., Winter 1981, "Time to the doctorate: A study of three models"
(d) D.D. Dager, M.S., Summer, 1982, "Indicators of interdisciplinary research"
(e) K.R. Nelms, M.S, Spring, 1984, "Technological forecast and assessment of the impacts of office automation on clerical workers"
(f) T. Halverson, M.S., Summer, 1989, "An Improved Cross-Impact Model"
(g) G. Krell, M.S., Summer, 1990, "The Refraction Model: A Study of the Impact of New Technologies on Industry."
(h) H. Xu, M.S., Fall, 1990, "A Bayesian theory of Cross-Impact Models for Technology Forecasting and Impact Assessment."
(i) G. Fogarty, M.S., Fall, 1996 [NTU MOT], "Developing a Joint Federal-Industry Production Program."
(j) R. Watts, M.S., Fall, 1996 [NTU MOT], "Innovation Forecasting."

[recent advising includes: S. Raut (MSPP, 1999),
L. Levy (MS-IDT, LCC, 1999), (MS-IDT, J. Inouye, LCC, 2000)]

## II. RESEARCH AND CREATIVE SCHOLARSHIP

### A. Thesis

Chick memory and electrophysiology: Effects of hyperbaric xenon and other gaseous anesthetics, flurothyl, and oxygen level, 1972. Advisor, Arthur Cherkin (Committee chairman, John Lyman), Engineering Psychology, University of California, Los Angeles (72-33, 971).

### B. Research Proposals and Grants Funded

1. Evaluation of the Doctoral Dissertation in Psychology as a Scientific contribution and Training Device
E.W. Hazen Foundation; also University of Washington
Graduate School Research, 1973
Result: Funded $1000 (1973-74
2. Technology Policy Assessment: Refinement and Evaluation of Methods co-P.I., with E. Wenk, Jr., (Project Leader)
National Science Foundation (RANN)
Result: Funded $51,500, 1974-7
4. Differential Impacts of Federal Funding Structures and Policies on State Transportation Performance, P.I.
U.S. Department of Transportation
Amount Requested: $52,500 1st year; $45,000, 2nd year 1975;
revised and resubmitted, 1976
Result: Funded $98,581 (1977-1979
6. Development of Frameworks for Integrating the Disciplinary Components of Technology Assessments
Director on sub-contract for $13,344; (second to P.E. - F.A. Rossini - in contribution to interviewing researchers, data analysis and synthesis of results).
National Science Foundation
Result: Funded $87,000, 1977-79
8. Recruitment and Retention of Women in Engineering: Development of Policy Guidelines
co-P.I.; (major collaborator with T. Connolly on this two-principal project)
Fund for the Improvement of Postsecondary Education
Amount Requested: $31,722, 1977
Result: Funded $31,722, 1977-7
9. Recruitment and Retention of Women in Engineering: Development of Policy Guidelines
co-P.I. (major collaborator with T. Connolly on this two principal grant)
Fund for the Improvement of Postsecondary Instruction
Amount Requested: $31,722, 1977; $10,000, 1978

Result: Funded, $31,722, 1977;
follow-on grant for $10,000 received in 197

11. A Cross-Disciplinary Assessment of the Role of the Doctoral Dissertation in Career Productivity
P.I.
National Science Foundation
Amount Requested: $63,000, 1978
Result: Funded, $63,000, 1978-80 (supplemental grant of
$8,000, 1980-81)

13. Indicators of Interdisciplinary Research
co-P.I., 1981-83; (second to P.I., D.E. Chubin, in
contributions, including supervision of statistical analysis)
National Science Foundation
Amount Requested: $75,353, 1980-83
Result: Funded

18. Development of Strategies for Mitigating Earthquake Hazards to Existing Structures in the Southeastern United States
co-P.I. (one of five faculty contributors, R.L. Martin, P.I.; I took the lead on the policy analysis)
National Science Foundation
Amount Requested: $95,000, 1982-85
Result: Funded

19. Review of the Processes of Interdisciplinary Research
National Science Foundation
P.I.
Amount Requested: $46,000, 1982-84
Result: Funded

20. Impact of Office Automation on Office Workers
co-P.I. (one of three principals; J.D. Roesnner, P.I.,
I took the lead in impact assessment)
U.S. Department of Labor
Amount Requested: $146,122, 1982
Result: Funded, $146,122, 1983-8

21. A Preliminary Risk Assessment of Chemicalization & Environmental Illness
P.I.
Biomedical Research Support Grant, NIH
Amount Requested: $4,500, 1983
Result: Funded $4,500, 1983-8

22. Office Automation: Tech Forecast, 1985-2000
P.I.
U.S. Congress, Office of Technology Assessment
Amount Requested: $35,000, 1984
Result: Funded, $35,000, 1984-85

23. Measuring Scientific Output
co-P.I. (one of two principals; D.E. Chubin, P.I.;
I took the lead on statistical analysis)
National Science Foundation
Amount Requested: $91,000, 1984
Result: Funded, $91,000, 1984-8

26. Analysis of Computer Use in Industrial R&D
co-P.I.; (one of two principals with F.A. Rossini; I took the lead on statistical analyses.)
Industrial Research Institute
Amount Requested: $3,000 + travel, 1984
Result: Funded, $4,000 + travel, 1984-8

27. LITE proposal (Laboratory for Information Technology Institute in Engineering) -- major development effort, 1985-88
Co-P.I. with J. Craig (AE), R. Fulton (ME), and
D. Schrage (AE).

Amount requested: $2,000,000
Result: 2 small contracts from NCR ($25,000)
and Lockheed ($50,000

28. Development of Indicators of Foreign Capabilities to Absorb/Utilize Technology
P.I.
Viking Instruments, 1986-87
Result: Funded, $60,00

29. Indicators of Technological Competitiveness
co-P.I.
National Science Foundation, 1989-91
Result: Funded $72,00

30. Engineering Design Simulator
P.I.
Manufacturing Research Center and Digital, 1989 Pilot Demonstrated March, 1990
Result: Funded $40,000

35. Indicators of Technology-based Competitiveness
co-P.I. (sole co-P.I.)
NSF, 1992
Amount Requested: $122,000
Result: Funded, 1992-9

36. Technology Opportunities Analysis for Program Manager's Associate, P.I. on subcontract to Search Technology
ARPA, 1994
Amount Requested: $23,382
Result: Funded, 1994-9

38. High Tech Indicators 1996, P.I.
NSF, 1995
Amount Requested: $24,973
Result: Funded, 1995-9

40. Technology Opportunities Analysis System, P.I. on subcontract to Search Technology
DARPA, 1996-98
Amount Requested: $500,000 [$150,000 to Georgia Tech]
Result: Funded

41. Technology Opportunities Analysis, P.I.
Intelligent Information Services Corp. (IISC), 1996-1998
Amount Requested: $35,000
Result: Funded
Increased [reflecting additional analyses for Army Environmental Policy Institute and Others], 1999-2000
Amount: ~$45,000 [cumulation of increments]
Increased [analyses for AEPI, NIOSH, industrial clients]
Cumulative Amount: ~$73,00

42. 21st Century Telecommunications Technology: Asynchronous Transfer Mode, P.I. on subcontract to GTRI
Maryland Procurement Office, 1997-98
Amount Requested: $9,250
Result: Funde

43. Mining Bibliographic Information on Emerging Technologies, P.I. (MOTI)
National Science Foundation, 1997; revised & resubmitted, 1998
Amount Requested: $407,000
Result: Funded for $201,518, 1998-2000

44. Technology Opportunities Analysis for Open Source Intelligence,
P.I. on Subcontract to Search Technology, Inc.,
DARPA and U.S. Army, 1998-2001
Amount Requested (sub-contract): $324,239
Result: Funded

48. Information Technology Impacts, P.I. on Subcontract to SRI
National Science Foundation, 1998-99
Amount Requested: $13,946

Result: Funded

49. High Tech Indicators, 1999-2000, P.I.
National Science Foundation
Amount Requested: $64,973 (funded

50. Indicators of Technology-based Competitiveness, co-P.I.
National Science Foundation, 1999-2001
Amount Requested: $116,975
Result: Funde

51. Technology Mapping, P.I. on subcontract to Lehigh University,
Office of Naval Research, 1999-2000
Amount: $14,684
Result: Funded

52. Mining Bibliographic Information on Emerging Technologies, P.I.
National Science Foundation (Project DMI-9872482), 1998-2001.
Amount: $200,000 (funded)

52. Why Don't Managers Want Our Technological Intelligence?
And What Can We Do About It?, P.I.
Center for Innovation Management Systems (Industrial
Consortium), 2001-2002
Amount: $19,393 (funded)

53. Rapid Technology Forecasting, P.I.
Air Products, Inc., 2001-2002
Amount: $19,703 (funded, but not implemented as contingent proposal not approved)

54. Research Profiling, P.I.
NSF, 2002
Amount: $99,800 (not funded)

55. QTIPs [24-hour Technology Intelligence & Forecasting, P.I.
NSF, 2002
Amount: $99,800 (funded Search Technology)

56. High Tech Statistics, P.I.
NSF, 2002-2003
Amount: $92, 600 (funded)

57. Knowledge Content in Key Economic Sectors in Malaysia, co-P.I.
United Nations Development Programme (UNDP), 2002-2003
Amount: $350,000 (funded IISC

58. Hazardous Substances Data Bank (HSDB) Text Mining, P.I.
National Library of Medicine, Specialized Information Services, 2002-2003
Amount: $75,000 (funded Search Technology

59. Extension of Text Mining Capabilities to Internet Data Resources
U.S. Army, TACOM, 2003-
Amount: $50,000 (funded Search Technology

60. Research Knowledge Utilization in Education
NSF, 2004-2005
Amount: $108,000 (funded)

61. High Tech Indicators, P.I.
NSF, 2005-2006
Amount: $93,000 (funded)

62. Research Sample Profiling, P.I., Search Technology, Inc.
NSF, 2007-2008
Amount: $95,000 (funded) (alp – 1.2 mo.

63. High Tech Indicators, P.I. TPAC, Georgia Tech
NSF, 2007-2008
Amount: $92,900 (funded) (alp -- 1.5 mo.)

64. EuroNano, P.I. on ETEPS subproject to Georgia Tech,
EU, 2008
Amount: $21,250 (funded)

65. Nano Trends, P.I.

OECD, 2008
Amount: $3000 (funded)

66. Center for Nano in Society, Real Time Technology Assessment,
NSF, Georgia Tech subproject from Arizona State Univ., 2005-09
Amount: $70,000 (Porter portion)
67. Mapping Nanotechnology
NSF, Georgia Tech subproject from North Carolina State Univ., 2004-08
Amount: $56,000 (funded)
68. Mapping Innovation Systems
UK Royal Commission on the Environment, Georgia Tech subproject from Univ. of Sussex, 2008
Amount: $19,000 (funded)
69. Measuring & Tracking Research Knowledge Integration
NSF, Georgia Tech (PI)
Amount: $392,000 (funded); NSF Award 0830207, 2008-2011
70. Interdisciplinary Networking Impact of the Research Coordination Network (RCN) program
NSF, Search Technology (PI)
Amount: $75,698 (funded); NSF Award DEB-0939622, 2009-2010.
71. Assessing the Interdisciplinarity and Research Networking Impacts of the Human and Social Dynamics (HSD) Priority Area Program
NSF, Search Technology (PI)
Amount: $199,842 (funded); NSF Award 0968924, 2010-2012
72. Assessment of Fifteen Nanotechnology Science and Engineering Centers? (NSECs) Outcomes and Impacts: Their contribution to NNI Objectives and Goals
NSF, Georgia Tech (co-PI)
Amount: $199,987; NSF Award 0955089, 2009-2011
73. Research Sample Profiling - AWARD DRL-1057682 Research Sample Profiling [REESE]
NSF, Search Technology (co-PI)
Amount: $83,979 (funded); NSF Award, 2010-2011
74. Revealing Innovation Pathways [SciSIP2]
NSF, Georgia Tech (PI)
Amount: $408,394, NSF Award 1064146, 2011-2014
75. Connections: STEM Educational Research Communities, Knowledge Transfer, and Contributions to Innovation Pathways
NSF, Search Technology (PI)
Amount: ~$547,000, Award DRL-1348765, 2014-17
75. Forecasting Innovation Pathways of Big Data & Analytics
NSF, Georgia Tech (PI)
Amount: $49,992, NSF Award 1527370, 2015-2016 (submitted 1/14/2015)
76. Disruptive Innovation Systems: Bridging the Gap between Data Mining and Foresight
NSF - SciSIP, Georgia Tech
Amount: $597,598 (submitted 2/6/2015; declined)
77. Data Reinforced Technology Options Assessment: Towards Repeatable and Transparent Strategic Intelligence
NSF - SiSIP, Georgia Tech (PI)
Amount: $599,372 (declined) (submitted 8/24/2015)
78. ORCID/Emergence: EAGER: Using the ORCID ID and Emergence Scoring to Study Frontier Researchers.
NSF, Search Technology (PI)
Amount: $149,920, Award EAGER #1645237, 2016-2018 (submitted 6/1/2016; awarded 8/22/2016)
79. The Effect of Disciplinary Mobility on Engineering Education Research
NSF, Georgia Tech (co-PI)
Amount: $697,830 (declined)
80. Indicators of Technological Emergence
NSF, Search Technology (PI)
Amount: $520,144, Award #1759960, 2018-2021 (submitted 9/8/2017; awarded 3/29/2018);
Supplement: $99,000 awarded 4/15/2020 (nano profiing)
[NSF SciSIP and NCSES]
81. An Indicator for Identifying Emerging Research Topics in Education and Cognitive Science

NSF, Search Technology (PI)
EHR – DRL $727,946 (submitted 1/22/2019 - declined)

82. SCISIPBIO: Faster Cures from National Initiatives: A Study of the National Plan to Address Alzheimer's Disease
NSF – SCISIPBIO, Research Triangle Institute (RTI) – Search Technology as sub-contract
Amount: $498,988 (sub - pending) (submitted 5/6/2019)

83. EAGER: Assessing the Landscape for Science/Engineering in Target Areas
NSF – OISE
Amount: $299,199 (PI - pending) (submitted 5/3/2019)

84. **RAPID: Corona Virus -- Exploring Causes and Cures through Literature Based Discovery**
NSF – SMA, SBE Office of Multidisciplinary Activities
Amount: $186,227, July 1, 2020 – June 20, 2021 (est.)

C. **Research Grants (Contributor)**

1. "Social Management of Technology," full-time participant under successive grants, National Science Foundation, University of Washington, $450,000, 1972-1974. (Gathered data on 5 case studies of technological development, performed comparative analyses)

2. "Social Management of Technology," participant, Sloan Foundation Grant, University of Washington, $350,000, 1974. (Curriculum development, program design.)

3. "First Phase Evaluation of Intensive Special Probation Projects," participant Law Enforcement Assistance Administration, 1976, $80,000, 1976. (1 of 5 main contributors to the data gathering and analysis, J. Banks, P.I.

4. "Impact Assessment Activities," - participant, funded. Oak Ridge National Lab, $72,000, 1979. (minor participant in energy impact assessments.)

5. "Cell Controller Project," 1 of 6 contributors, Manufacturing Research Center, $25,000, funded , 1992.

6. "Center for International Business Education & Research" (CIBER), major participant, "Global Technology Opportunities" Section, Approximately $10,000 per year for 3 years, funded, 1993-95; Renewed, 1996-99; renewed, 1999-2002.

7. Nano – Partnerships For Innovation (NSF-PFI) – Sub-contract to North Carolina State University, 2004- .

8. Center for Nanotechnology in Society (NSF) – Sub-contract to Arizona State University, 2006-.

**** Patents**

Porter, A.L., Newman, N.C., Garner, J.G., and Carley, S.F. (Nov., 2017)*, Technological Emergence Scoring and Analysis Platform, United States Patent Application 15/803185.
* Provisional Patent Application 62/420295 filed Nov. 10, 2016.

**D. Published Books and Parts of Books**

*****NOTE:** The order of authorship reflects the degree of contribution in all publications with the exception of the Banks et al. and Roessner et al. reports in which authorship is alphabetical after first author.

**Books**

1. Porter, A.L., Rossini, F.A., Carpenter, S.R. and Roper, A.T., *A Guidebook for Technology Assessment and Impact Analysis.* New York: North Holland, 1980 (2nd printing 1982; 3rd printing 1985) (Chapter 2 reprinted in Whitten, (ed.) *Time's Harvest: Exploring the Future*, Lexington, MA: Ginn, 1984.

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4. Roessner, J.D., Mason, R.M., Schwartz, A.P., Porter, A.L., and Rossini, F.A., *The Impact of Office Automation on Clerical Employment, 1985-2000*, Westport, CT: Greenwood Press, 1985.
5. Chubin, D.E., Rossini, F.A., Porter, A.L., and Connolly, T. (eds.), *Interdisciplinary Analysis and Research*, Mt. Airy, MD: Lomond, 1986.
6. Becker, H., and Porter, A.L. (eds.), *Methods and Experiences in Impact Assessment*, Dordrecht: D. Reidel, 1986.
7. Becker, H., and Porter, A.L. (eds.), *Impact Assessment Today* (2 Vols.) Utrecht: Jan Van Arkel, 1986.
8. Porter, A.L., (ed.), *Impact Assessment Bulletin*, Special Issue on International Impacts of Technology, Vol. 5, No. 3, 1987.
9. Porter, A.L., Roper, A.T., Mason, T.W., Rossini, F.A., and Banks, J., *Forecasting and Management of Technology*, New York: John Wiley, 1991
10. Porter, A.L., and Read, W. (eds.), *Technology Analysis and Strategic Management*, Special Issue on The Information Revolution: Its Present and Future Consequences, Vol. 8, No. 3, 1996.
11. Porter, A.L., and Fittipaldi, J. (eds.), *Environmental Methods Review: Retooling Impact Assessment for the New Century*, Army Environmental Policy Institute, 1998.
12. Porter, A.L., and Read, W. (eds.), *The Information Revolution: Current and Future Consequences*, Westport, CT: JAI/Ablex, 1998.
13. Porter, A.L., and Cunningham, S.W., *Tech Mining: Exploiting New Technologies for Competitive Advantage*, Wiley, New York, 2005 [Chinese edition, Tsinghua University Press, 2012].
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15. Li, J-L, Zhu, D., Porter, A.L., and Wu, D.D., Proceedings of the First International Conference on Technology Innovation, Risk Management and Supply Chain Management (TIRMSCM 2007), Universe Academic Press, Toronto, ISBN 978-0-9783484-4-1, November, 2007.
16. Roper, A.T., Cunningham, S.W., Porter, A.L., Mason, T.W., Rossini, F.A., and Banks, J., *Forecasting and Management of Technology*, 2d edition, New York: John Wiley, 2011.
17. Daim, T., Porter, A.L., Chiavetta, D., and Saritas, O. (Eds.), (2016). *Anticipating Future Innovation Pathways through Large Data Analytics*, Springer, New York [ISBN 978-3-319-39056-7].

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1. Porter, A.L., "Complexity, Causality, Caveats: Methodological Findings of A Retrospective Assessment," in: Retrospective Technology Assessment--1976,Tarr, J.W. (ed.). New York: Van Nostrand Reinhold, 1978, p. 31-54.
2. Porter, A.L. and Rossini, F.A., "Alternative TA Designs: How Else Might One Do It?" In: Technology Assessment: Creative Futures, Borush, M., Chen, K. and Christakis, A. (eds.). New York: North Holland, 1980, p. 80-85.
3. Porter, A.L. and Rossini, F.A., "Technological Innovation and Its Assessment," in: The Encyclopedia of Policy Studies, Nagel, S.S. (eds.), Marcel Dekker, New York, 1983, p. 727-752.
4. Porter, A.L., "Assessing the Social Impacts of New Technologies," in Scientists, Engineers and Organizations, Connolly, T. (ed.), Monterrey, CA: Brooks/Cole Publishing Co., 1983.
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7. Porter, A.L. and Rossini, F.A., "Technological Forecasting, " Encyclopedia of Systems and Control (Management Science Section, M. Singh (ed.), Oxford: Pergammon, 1987, p. 4823-4828.
8. Rossini, F.A. and Porter, A.L., "Interdisciplinary Research Without Disciplines," in Managing High Technology, Mar, B.W., Newell, W.T., and Saxberg, B.O. (eds.), Elsevier Science Publishers, New York, 1985, p. 201-207.
9. Porter, A.L. and Rossini, F.A., "Forty Interdisciplinary Research Projects: Multiple Skills and Peer Review," in Managing High Technology, Mar, B.W., Newell, W.T., and Saxberg, B.O. (eds.), Elsevier Science Publishers, New York, 1985, p. 103-112.

10. Porter, A.L., and Rossini, F.A., "Robotics in the Year 2000, A Delphi Forecast," in Encyclopedia of Robotics, Dorf, R.C. (ed.). New York: John Wiley, 1988, p. 565-578. "Futurism and Robotics," (edited version), Condensed Encyclopedia of Robotics, Dorf, R.C. (ed.), 1990, p. 361-370.
11. Porter, A.L., "Changes in Engineering Quality and Performance: Potential Indicators of Adjustment," NAS/NAE, Office of Scientific and Engineering Personnel, Committee on Engineering Labor Market Adjustments, National Research Council, Washington, DC, 1988.
12. Roessner, J.D., Porter, A.L. and Fouts, S.C., "Technology Absorption, Institutionalization, and International Competitiveness in High Technology Industries," in Technology Management 1, Khalil, T.M., Bayraktar, B.A. and Edosomwan, J.A. (Eds.) Inderscience Enterprises/UNESCO, 1988, p. 779-790.
13. Roessner, J.D., and Porter, A.L., "Achieving Technology-based Competitiveness in Developing Countries," in Chatterji, M. (Ed.) Technology Transfer in the Developing Countries, Macmillan, London, 1990, p. 94-103.
14. Porter, A.L., and Rossini, F.A., "Technological Forecasting," in Concise Encyclopedia of Information Processing in Systems and Organization, Sage, A.P. (ed.), 1990, p. 511-517.
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16. Rossini, F.A., and Porter, A.L., "Technology: Innovation and Consequences," Encyclopedia of Policy Studies, 2d Ed., Nagel, S. (ed.), Marcel Dekker, New York, 1994. p. 707-729.
17. Porter, A.L., "The Globalization of Impact Assessment," in Sturen Tussen Sociologie en Beleid, Hermkens, P.L.J., Beekes, A., and Sanders, K. (eds.), Thesis Publishers, Amsterdam, 1994, p. 93-107.
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## F. Published Journal Papers (refereed)

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65. Porter, A.L., Tech Mining Can Support Open Innovation in Your Industry, Center for Innovation Management Studies Newsletter, North Carolina State University, Spring, 2010 [research profiling of nano-enhanced drug delivery]
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71. Porter, A.L. (2018), Measuring the emergence of new technological capabilities, *CIMS Innovation Management Report*, Poole College of Management, NC State University, Raleigh (March/April), 1-7.
72. Porter, A.L. (2019), Data analytics for better informed technology & engineering management, *IEEE Engineering Management Review*, in press.

**b. Research Reports**

1. Porter, A.L., "Chick Memory and Electrophysiology: Effects of Hyperbaric Xenon and Other Gaseous Anesthetics, Flurothyl, and Oxygen Level," Ph.D. Dissertation, University of California, Los Angeles (72-33, 971), 1972.
2. Porter, A.L., with Kuehn, T.J. Evaluating State Implementation of Federal Highway Policy: Methods and Findings (2 volumes), report to National Science Foundation, RANN, Exploratory Research and Problem Assessment (Grant No. ERP 74-20740), 1976, (NTIS-PB 289 830).
3. Banks, J., Porter, A.L., Rardin, R.L., Siler, T.R. and Unger, V.E., Evaluation of Intensive Special Probation Projects (7 volumes), Report to the Natinal Intitute of Law Enforcement and Criminal Justice (Series A, No. 16), 1977.
4. Rossini, F.A., Porter A.L., Kelly, P. and Chubin, D.E., Frameworks and Factors Affecting Integration Within Technology Assessments (2 volumes), report to the National Science Foundation, 1978 (NTIS-PB 294 607, 294 608).
5. Connolly, T., Porter, A.L., Women in Engineering: Policy Recommendations for Recruitment and Retention in Undergraduate Programs, report to the Fund for the Improvement of Postsecondary Education, 1978.
6. Porter, A.L., Park, C.Y., Rees, L.P., Connolly, T., Rao, S. and Larson, T.D., Effects of Federal Transportation Policies and Structures, (7 volumes), Report to the U.S. Department of Transportation (DOTP-10-80-10 through 16), 1979.
7. Porter, A.L., Chubin, D.E., Boeckmann, M.E., Connolly, T., and Rossini, F.A., A Crossdisciplinary Assessment of the Role of the Doctoral Dissertation in Career Productivity, report to the National Science Foundation, Division of Science Resource Studies, 1981.
8. Chubin, D.E., Porter, A.L., Rossini, F.A., and Connolly, T., Indicators of Interdisciplinary Research, final report to the Natinal Science Fondation, Division of Science Resources Studies, 1983.
9. Porter, A.L., Chubin, D.E., Boeckmann, M.E., Connolly, T., and Rossini, F.A., A Cross-disciplinary Assessment of the Role of the Doctoral Dissertation in Career Development, Atlanta: Georgia Institute of Technology, final report to NSA, Science Resources Studies (Grant SRS78-18959), 1981 {portion used in Science Indicators, 1982 Washington, D.C., National Science Board, 1984}.
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16. Rossini, F.A., Porter, A.L., and Jacobs, C.C., Computer Use in Industrial Research and Development: 1986 Data and Twelve Year Trends, 1987.
17. Porter, A.L., and Roessner, J.D., Indicators of National Competitivenessin High Technology Industries. Atlanta: Georgia Institute of Technology, final report to National Science Foundation, 1991.
18. Cunningham, S., and Porter, A.L., A Forecast and Assessment of Telework, Atlanta: Georgia Institute of Technology, 1991.
19. Porter, A.L., Private Sector Innovations in Electronic Service Delivery, Washington, D.C.: U.S. Congress, Office of Technology Assessment, 1991.
20. Roessner, J.D., Porter, A.L., Newman, N., and Cauffiel, D.A., Implementation and Further Analysis of Indicators of Technology-based Competitiveness, Atlanta: Georgia Institute of Technology, final report to National Science Foundation, 1995.

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23. Porter, A.L., Roessner, J.D., Newman, N.C., and Jin, X-Y., 1999 Indicators of Technology-based Competitiveness of 33 Nations, Atlanta: Georgia Tech, final report to National Science Foundation, 2000.
24. Shapira, P., Youtie, J., Porter, A., Mohaptra, S., Oh, E., De Minin, A., *Evaluation of the MITI Advanced Material Processing and Machining Technology Program*, Atlanta: Georgia Tech School of Public Policy, and Technology Policy and Assessment Center, 2001.
25. Cousins, S., Shapira, P., Krige, J., and Porter, A. *Assessment of Irish Participation in Inter-Governmental Research Organizations*, Atlanta: Georgia Tech School of Public Policy, and Technology Policy and Assessment Center, 2001.
26. Roessner, J.D., Porter, A.L., Jin, X-Y., Newman, N.C., and Yglesias, E., *Indicators of Technology-based Competitiveness: Incorporating Recent Changes in the Concept, "High-technology," and in Data Availability*, Atlanta: Georgia Tech School of Public Policy and Technology Policy and Assessment Center, final report to National Science Foundation, 2001 [project #9901310]
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28. Newman. N.C., Myers, W.W., Porter, A.L., and Schoeneck, D., *Bibliometric Assessment of EPA/STAR Projects*, IISC, for National Academy of Sciences Committee to Review EPA's Research Grants Program.
29. Porter, A., Roessner, D., Newman, N. Kongthon, A., and Jin, X-Y., *Review and Revision of High Tech Indicators 2003*, Report to the Science Indicators Unit, National Science Foundation (Contract D020024), 2004.
30. Porter, A.L., Roessner, J.D., Newman, N.C., Jin, X-Y., and Johnson, D.M., *High Tech Indicators: Technology-based Competitiveness of 33 Nations – 2005 Final Report* to the Science Indicators Unit, National Science Foundation (Contract D050144), 2006.
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32. Porter, A.L., Newman, N.C., Jin, X-Y., Johnson, D.M., and Roessner, J.D., *High Tech Indicators (Statistics-Only): Technology-based Competitiveness of 33 Nations – 2008 Report* to the Science Indicators Unit, National Science Foundation (Contract DACS07P1121), 2008.
33. Porter, A.L., and Schoeneck, D.J. (2009). *Analyses of ROLE/REESE Projects: Research Knowledge Communities Engaged*, Final Report to the National Science Foundation [Award #DRL-0636174].
34. Porter, A.L., and Rafols, I. (2010). Measuring and Tracking Research Knowledge Integration, *Annual Report to the National Science Foundation,* (Georgia Tech; NSF Award #0830207).
35. Porter, A.L., and Garner, J., (2010). Interdisciplinary Networking Impact of the Research Coordination Network (RCN) program, *Annual Report to the National Science Foundation* [Award # DEB-0939622].
36. Garner, J., and Porter, A.L., (2011; 2012; 2013). Assessing the Interdisciplinarity and Research Networking Impacts of the Human and Social Dynamics ("HSD") Priority Area Program, *Annual and Final Reports to the National Science Foundation* [#BCS-0968924].
37. Kostoff, R.N., Zhang, Y., Ma, J., Porter, A.L., and Buchtel, H.A., (2017), Prevention and Reversal of Alzheimer's Disease, Georgia Institute of Technology. 2017. PDF; https://smartech.gatech.edu/handle/1853/56646.
38. Youtie, J., Porter. A.L., Shapira, P., Woo, S., and Huang, Y. (2018), Autonomous systems: A bibliometric and patent analysis, Expertenkommission Forshung und Innovation (EFI), EconStor: https://www.econstor.eu/bitstream/10419/175556/1/1015315984.pdf.

## H. Conference Presentations

### Invited Addresses (keynote)

1. Porter, A.L., "Co-technology to Co-work," Georgia Telecommunications Association Annual Meeting, Atlanta, 1992.
2. Porter, A.L., "Information Age, Phase III: Implications for Home and Work," World Futures Society, Georgia Chapter, Annual Meeting, Atlanta, 1992.

3. Porter, A.L., and Weisbecker, L.W., "Issues in Technology Assessment for Development," United Nations Expert Group Meeting on Technology Assessment for Development, Paris, 1993 [Base Paper upon which 21 other papers were presented and discussed].
4. Porter, A.L., "Emerging Information Technologies," Currents '93, Society for Technical Communication, Atlanta, 1993.
5. Porter, A.L., "The Virtual Office," 3rd Annual Southeastern Telecommuting Conference, Atlanta, 1994.
6. Porter, A.L., "Technology Opportunities Analysis," International Symposium on Forecasting (International Institute of Forecasters), Toronto, 1995.
7. Porter, A.L., "Mining for Information: Technology Opportunities Analysis, AT&T InfoEdge, San Diego and Los Angeles, 1995.
8. Porter, A.L., "Emerging Technology Opportunities Analysis," Design Supercon, Santa Clara, CA, 1996.
9. Porter, A.L., "Trends," International Association for Impact Assessment, Estoril, Portugal, 1996.
10. Porter, A.L., "Technology Assessment (TA), Strategic Environmental Assessment (SEA), and Sustainability," International Association of Technology Assessment and Forecasting Institutions, Brussels, 1996.
11. Porter, A.L., "Environmental Assessment and Impact Assessment: North American and Global Directions," Environmental Impact Assessment Congress, Perugia, Italy, 1996.
12. Porter, A.L., "On the Future of Technology Forecasting and Assessment," World Congress on the Systems Sciences, Toronto, 2000.
13. Porter, A.L., Impact Assessment: A Personal Odyssey, IAIA, 2005 (Rose-Hulman Awardee).
14. Porter, A.L., "Analysis of Future Technologies," Seminario Internacional: Prospective on Science, Technology & Innovation, Perspectives in Integrating Ibero-Americana, Rio de Janiero, July 7-8, 2005
15. Porter, A.L., "Foresight in Perspective," Prospecta Peru 2005, Lima, Sep., 2005.
16. Rader, M. & Porter, A.L., Fitting Future-oriented Technology Analysis Methods to Study Types, *Future-Oriented Technology Analyses Seminar,* Seville, Sep., 2006.
17. Porter, A.L., "Tech Mining" to Drive Open Innovation, International Conference on Technology Innovation, Risk Management and Supply Chain Management, Beijing, Nov., 2007 [TIRMSCM2007 Proceedings, p. 1-13].
18. Porter, A.L., Open Innovation via Tech Mining, La Inteligencia Competitiva Conferencia Internacional, Madrid, Nov 29-30, 2007.
19. __, Inaugural Address, Graduate Program in Science, Technology & Society, University Federal, San Carlos, April, 2008.
20. Porter, A.L., Using patent information to generate innovation indicators, ENAPID - III Encontro Acadêmico de Propriedade Intelectual, Inovação e Desenvolvimento, Rio de Janeiro, 2010 (Sep).
21. Porter, A.L., Tech Mining of ST&I information resources, R&D Management – Empirical Tools and Techniques: What Really Works?, Campinas, Brazil, 2010 (Sep).
22. Garner, J., and Porter, A.L., Research Networking & Interdisciplinarity of the Human and Social Dynamics (HSD) Program, *HSD -- Human and Social Dynamics, 2010 Grantees Conference*, Arlington (Oct.).
23. Porter, A.L., Guo, Y., Huang, L., and Robinson, D.K.R., Forecasting Innovation Pathways: The Case of Nano-enhanced Solar Cells, *ITICTI - International Conference on Technological Innovation and Competitive Technical Intelligence,* Beijing, December, 2010.
24. Garner, J., and Porter, A.L., Assessing the Outputs & Impacts of RCN Funding, Research Coordination Networks PI Meeting, Arlington, VA, December, 2010.
25. Porter, A.L., Ma, TingTing, and Guo, Y., Multiple Perspective Research Profiling: Illustrated for Dye-Sensitized Solar Cells, International Council for Scientific and Technical Information 2011 Summer Conference (June 7-8), Beijing.
26. Porter, A.L., Tech Mining after 10 Years, *3d Encontro Brasileiro de Bibliometria e Ceintometria*, Gramado, Brazil, August, 2012.
27. Porter, A.L., Future-oriented Technology Analysis, *Analytical Methods for Technology Forecasting*, Library of Congress FEDLINK, March 6, 2014, Washington DC.
28. Porter, A.L., (2013), Productive Tech Mining, *III ProspeCT&I Conference*, Salvador, Brazil.
29. Porter, A.L., (2016), Forecasting Innovation Pathways: The case of big data, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Honolulu, HI (September).
30. Porter, A.L. (2017), Future-oriented Technology Analysis, *International Workshop on Innovation Systems, Strategies and Policy*, Campinas, Brazil (July 4).
31. Porter, A.L., (2017), "Tech Emergence" Indicators – to inform Management of Technology, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, OR (July 11).
32. Porter, A. (2019), Indicators of R&D emergence for better informed technology & engineering management, *IEEE Technology & Engineering Management Society Conference (TEMSCON)*, Atlanta (keynote).

**Invited Addresses (not keynote)**

1. Porter, A.L., "Industrial Application of Technology Assessment,"
   Technology Assessing Conference, East-West Center, Honolulu, 1977.
2. Porter, A.L., invited seminars on "The Process of Technology Assessment" (March, 1977), and "State and Local Effects of Federal Transportation Funding Policy" (October, 1977), Jet Propulsion Laboratory/Caltech, Pasadena.
3. Rossini, F.A., Porter, A.L, Chubin, D.E. and Kelly, P., "The Integration of Technology Assessments," National Science Foundation Workshop on Technology Assessment Methodology, Dayton, Ohio, 1977.
4. Rossini, F.A., Porter, A.L., Chubin, D.E. and Kelly, P., "Integrating Technology Assessments," AAAS Annual Meeting, Washington, D.C., 1978.
5. Rossini, F.A., Porter, A.L., Chubin, D.E., Connolly, T. and Anderson, K.V., "Crossdisciplinary in the Biomedical Sciences: A Preliminary Analysis of Anatomy Departments," AAAS Annual Meeting, Toronto, 1981.
6. Porter, A.L., Chubin, D.E., and Rossini, F.A., " Impact Assessment: At the Interface Between Knowledge and Power," New York Society for Ethical Culture, Symposium on Nuclear Power: Ethics and Public Policy, New York, 1981.
7. Porter, A.L., "Multiple Perspective Integration: Frameworks and Methods," International Conference on Social Impact Assessment, Vancouver, B.C., 1982.
8. Porter, A.L., "Interdisciplinary Research Processes," NSF Workshop for Engineering Research Administrators, W. Lafayette, IN, 1983.
9. Porter, A.L., "A Forecast of the Impacts of Office Automation on Clerical Workers," IEEE-SMC, Delhi, India, 1984.
10. Porter, A.L, "Forty Interdisciplinary Research Projects: Multiple Skills and Peer Review," Third International Conference on Interdisciplinary Research, Seattle, 1984.
11. Rossini, F.A., and Porter, A.L., "A Technology Delivery System for Microcomputers in Developing Nations," American Society for Engineering Education, Atlanta, 1985.
12. Rossini, F.A., and Porter, A.L., "Analysis of the Use of Computers in Industrial R&D," Industrial Research Institute Annual Meeting, Colorado Springs, 1985.
13. Porter, A.L., "The Future of Work," GTE invited Lecturer, Savannah State College ,1986.
14. Porter, A.L., "Interdisciplinary Research Processes: Theory and Data," Fourth International Conference on Interdisciplinary Research, Budapest, Hungary, 1986.
15. Porter, A.L., "Technological Competitiveness," National Science Foundation Workshop on Indicators of International Technology Transfer," Northwestern University, Evanston, IL, 1987.
16. Porter, A.L., "Technology Forecasting and Assessment Methods," National Research Center for Science and Technology for Development, Beijing, 1988.
17. Roessner, J.D., and Porter, A.L., "Indicators of Competitiveness in High Tech Industries," Amer. Assn. for the Advancement of Science (AAAS) Annual Meeting, San Francisco, 1989.
18. Porter, A.L., "Technological Change and Global Change: The Role of Impact Assessment," AAAS Annual Meeting, Washington, D.C., 1991.
19. Porter, A.L., "Tracking Technological Change," Seminar, United Nations Center for Science and Technology for Development, New York, 1991.
20. Porter, A.L., "Comparison of Technology Monitoring, Forecasting & Assessment in the Private and Public Sectors," UN/OTA Workshop on Technology Assessment for Developing Countries, Washington, D.C., 1991.
21. Porter, A.L., "Sustainable Development Criteria Applied Through Technology Assessment," Canadian Chemical Engineering Conference, Ottawa, 1993.
22. Porter, A.L., "Resource Futures," The Association of Pulp and Paper Industries (TAPPI), Atlanta, 1994.
23. Porter, A.L., "Roles of Technology Forecasting and Assessment," U.S.-Mexico Technological Cooperation: Binational Technology Research Workshop, Merida, Mexico, 1994.
24. Porter, A.L., "Technology Assessment: State of the Art," IAIA Conference, Quebec, 1994.
25. Porter, A.L., and Rzeszotarski, P., "Technology Opportunities Analysis," Society of Competitive Intelligence Professionals [SCIP], Chicago, 1998.
26. Porter, A.L., "Bibliometric Tools for Intelligence on Emerging Technologies," Product Development & Management Conference, Atlanta, 1998.
27. Porter, A.L., and Newman. N.C., "Why Don't Managers Want our Technological Intelligence? And What Can We Do about it? *Society of Competitive Intelligence Professionals* [SCIP], Seattle, 2001.
28. Porter, A.L., "Why Don't Product Development Managers Use Our Technology Analyses?", *Product Development Management Association*, Newark, 2001.
29. Porter, A.L., "Enhancing the Utilization of Technology Analyses," Center for Innovation Management Studies (CIMS), Raleigh, 2001

30. Porter, A.L., "Speed as a Critical Factor for the Utilization of Technology Analyses, Workshop on Management of Accelerated Technology Insertion (MATI), Hartford, 2001
31. Porter, A.L., "National High Tech Indicators," UN Commission on Science & Technology for Development, Panel on Technological Indicators, Geneva, May, 2002.
32. Porter, A.L., "Innovation Mapping," *Accelerating the Radical Innovation Process: Information Enhanced NanoEnterprises*, May 16-21, 2004, Charleston, SC [Engineering Conferences International]
33. Porter, A.L. Rapid Technology Intelligence, *Asia Pacific Tech Foresight*, Taipei, October, 2004
34. Porter, A.L., Tech Mining: Useful Intelligence from Patents, PIUG (Patent Information Users Group) Annual Conference, Arlington, VA, 2005.
35. Porter, A.L., Technology Futures Analyses: New methods, Advanced Seminar in Propsective Conference, Pontifical Catholic University, Lima, Sep., 2005.
36. Porter, A.L., Key Factors for Technology-based Competitiveness, APEC Center for Technologic Prospective Course on Foresight, Lima, Sep., 2005.
37. Porter, A.L., Information and the Management of Technology, Industrial Research Institute, Information Services Directors Network Meeting, Detroit, Sep., 2005.
38. Porter, A.L., Tech Mining, Canada Institute for Scientific and Technical Information, National Research Council, Ottawa, Oct., 2005.
39. Porter, A.L., Tech Mining: Actionable Intelligence from Science and Technology Information, *First Congresso Ibero-Americano de Gestao do Conhecimento e Inteligencia Competitiva*, Curitiba, Brazil, Aug., 2006
40. Porter, A.L., and Patil, J., "Where Is Nano Going?" *Nano-Giga Challenges*, Phoenix, March, 2007.
41. Porter, A.L., Mining Patents + Research Publications to Improve Technology Management: Nano Illustrations," 2d PATINEX Conference, Seoul, Nov. 29, 2006.
42. Porter, A.L., Progress in Tech Forecasting Methods, ISTIC Public Lecture, Beijing, October 31, 2007.
43. ---, Competitive Technical Intelligence, Innovation & Tech Mining, *Competia 2008: International Conference on Competitive Intelligence*, Santiago and Concepcion, Chile, April, 2008.
44. Porter, A.L., Technology Opportunities Analysis, Conference on The role of local authorities in promoting innovation and technological development, Spain, 2010 (Oct.).
45. Porter, A.L., Metrics for Evaluating Impacts of RCNs, *Research Coordination Networks PI Meeting,* Arlington, VA, December, 2010.
46. Porter, A.L., Future Innovation Pathways, CIMS Fall Meeting, Raleigh, 2010.
47. Porter, A.L., Mapping Research Networks, *Third Annual International Science of Team Science Conference*, Chicago, 2012.
48. Porter, A.L., and Ma, J. (2014), Hunting for opportunities: Nano-Enabled Drug Delivery (NEDD) to treat cancers, *Gordon Research Conference on Science and Technology Policy: Systems Approaches to Research and Practice,* Waterville Valley NH.
49. Porter, A.L. (2015), Nano Bibliometrics, *Nanoinformatics Conference*, Arlington, VA (Jan. 27-28).

**Conference Presentations with Proceedings (refereed)**

1. Porter, A.L., "Human Factors: Micro to Macro," Proceedings of the 7th Annual Meeting of the Human Factors Society, Washington, D.C., 1973, p. 98-104.
2. Lipscomb, M.A. and Porter, A.L., "Management of a Technology Assessment to Achieve Integration," Proceedings of the Annual North American Meeting, Society for General Systems Research, Denver, 1977, p. 475-482.
3. Porter, A.L. and Havick, J.J., "Research Methodology for the Study of Technology Assessment Integration," Proceedings of the Annual North American Meeting, Society for General Systems Research, Denver, 1977, p. 483-488.
4. Rossini, F.A. and Porter, A.L., "A Model of the Structures and Processes Leading to Integration of a Technology Assessment," Proceedings of the Annual North American Meeting, Society for General Systems Research, Denver, 1977, p. 489-498.
5. Porter, A.L. and Connolly, T., "The Process of Entry of Women Into Engineering: Two Hypotheses," Proceedings of the 9th Annual Conference on Frontiers in Education, Niagara Falls, Canada, 1979, p. 367-373.
6. Abraham, D.S., Rossini, F.A., and Porter, A.L., "Trends in Manufacturing Technology: A Look at the Role of Robots and AGVS in Future Manufacturing Operations, Proceedings," IEEE Conference on Management and Technology, p. 163-168, 1987.
7. Porter, A.L., Roessner, J.D., Kuehn, T.J., and Drew, R.C., "National Competitiveness in High Technology Manufacturing," ASME Manufacturing International `88, Proceedings, Volume II, Symposium on Management and Economics, p. 67-74, 1988.
8. Porter, A.L., Roessner, J.D., and Xu, H., "High Technology Competitiveness: Indicators for 29 Countries," Portland

International Conference on the Management of Engineering and Technology, Portland, OR: Portland State University, p. 804-807, 1991.

9. Porter, A.L., Detampel, M.J., Jin, X-Y., and Porter, D., "Technology Opportunities Analysis: Patterns in the Literature on Environmental Technologies," Proceedings, First International Association for Technology Assessment and Forecasting Institutions Conference, Bergen, Norway, 1994.
10. Porter, A.L., "Technology Opportunities Analysis: Profiling the Emergence of Notebook Computers," Proceedings, Technology Transfer Society: Technology Commercialization and Economic Growth, Washington, D.C., 1995.
11. Jin, X-Y., and Porter, A.L., "Three Suggestions for Improving Environmental Assessment Effectiveness," Proceedings, International Association for Impact Assessment, Estoril, Portugal, 1996.
12. Porter, A.L., "Learning from What's Been Done," Proceedings, International Association for Impact Assessment, Estoril, Portugal, 1996.
13. Watts, R.J., Porter, A.L., Cunningham, S.W., and Zhu, D., "TOAS Intelligence Mining, an Analysis of NLP and Computational Linquistics," Proceeding, First European Symposium on Principles of Data Mining and Knowledge Discovery, [Bergen, Norway]; New York: Springer-Verlag, p. 323-334, 1997.
14. Carlisle, J.P., Cunningham, S.W., Nayak, A., and Porter, A.L., "Related Problems of Knowledge Discovery," Hawaii International Conference on System Sciences [HICSS] Proceedings on CD – Modeling Technologies and Intelligent Systems Track; Data Mining and Knowledge Discovery Mini-track, January, 1999.
15. Watts, R.J., and Porter, A.L., Mining Foreign language Information Resources, Proceedings, Portland International Conference on Management of Engineering and Technology (PICMET), Portland, OR, USA, July, 1999.
16. Zhu, D., and Porter, A.L., Automated Extraction and Visualization of Information from Bibliographic Sources, [summary] Proceedings, IJCAI-99 Workshop on Text Mining: Foundations, Techniques and Applications, Stockholm, 1999.
17. Porter, A.L., Coelho, E., Zhu, D., Watts, R.J., Carlisle, J.P., Newman, N.C., Kikuchi, M., Porter, A.L., and Frey, P., Text Mining in a Foreign Language, Proceedings, IJCAI-99 Workshop on Text Mining: Foundations, Techniques and Applications, Stockholm, 1999.
18. Porter, A.L., Newman, N.C., Watts, R.J., Zhu, D., Courseault, C., Myers, W., and Yglesias, E., Why Don't Technology Managers Want our Knowledge? International Association for Management of Technology, Miami, 2000.
19. Porter, A.L., Newman, N.C., Watts, R.J., Zhu, D., and Courseault, C., Matching Information Products to Technology Management Processes, AAAI (American Association for Artificial Intelligence) Workshop on Bringing Knowledge to Business Processes, Stanford, CA, April, 2000.
20. Watts, R.J., and Porter, A.L., Requirements-based Knowledge Discovery for Technology Management, Portland International Conference on Management of Engineering and Technology (PICMET), Portland, OR, 2001.
21. Porter, A.L., Impact Assessment and Sustainability in Engineering Education, Engineering Education in Sustainable Development, Delft, 2002.
22. Porter, A.L., Watts, R.J., and Anderson, T.R., Mining PICMET: 1997-2003 Papers Help You Track Management of Technology Developments, in Kocaoglu, D.F. and Anderson, T.R. (eds.), Technology Management for Reshaping the World, IEEE, Piscataway, NJ, 2003.
23. Porter, A.L., Watts, R.J., and Anderson, T.R., Mining PICMET: 1997-2005 Papers Help You Track Management of Technology Developments, Portland International Conference on Management of Engineering and Technology (PICMET), Portland, OR, 2005.
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95. Porter, A.L., and Brenner, M. "QTIP: Quick Technology Intelligence Products," INFORMS, Atlanta, 2003.
96. Schoeneck, D.J., and Porter, A.L., Text Mining the Radical Innovation Literature: Locating Experts & Leading Institutions, *Accelerating the Radical Innovation Process: Information Enhanced NanoEnterprises*, May 16-21, 2004, Charleston, SC [Engineering Conferences International]
97. Porter, A.L., Szczur, M., Chang, H.F., Goshorn, J., and Schoeneck, D., New Opportunities to Exploit the Hazardous Substances Data Bank Using Text Mining, *Society of Toxicology Annual Conference*, Baltimore, 2004.
98. Newman, N.C., Porter, A.L., Roessner, J.D., Kongthon, A., and Jin, X-Y. Differences Over a Decade: High Tech Capabilities and Competitive Performance of 28 Nationas, *Science Indicators, 2004*, Leiden, The Netherlands.
99. Porter, A.L., Rapid Technology Intelligence Process, Division of Chemical Information, American Chemical Society National Meeting, San Diego, 2005.
100. Watts, R.J., and Porter, A.L., Mining Conference Proceedings for Corporate Technology Knowledge Management, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 2005.

101. Porter, A.L., Better Technology Management through Better Technology Information, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 2005 [session chair]
102. Watts, R.J., and Porter, A.L., Technical Text Clustering by Protected Natural Language Processing, *ICDM 2005* (submitted)
103. Porter, A.L., Watts, R.J., and Anderson, T.R., Mining PICMET: 1997-2005 Papers help You Track Management of Technology Developments, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 2005.
104. Oliver, S., Porter, A.L., Roessner, J.D., and Johnson, D., A Systems Model for the Scholarship of Teaching, *American Association for Higher Education*, Atlanta, 2005.
105. Porter, A.L., Roessner, J.D., Oliver, S., and Johnson, D., A Systems Model for the Scholarship of Teaching, *Society for Teaching and Learning in Higher Education*, Annual Conference, Charlottetown, Prince Edward Island, Canada, 2005.
106. Shapira, P., and Porter, A.L., Mapping the Nanotechnology Enterprise, *American Political Science Association Annual Meeting*, Washington, DC, 2005.
107. Alan Porter, Nils Newman, Patent Data and Analyses: Text Mining Opportunities, *Patent Statistics for Policy Decision Making*, Vienna, 23-24 October, 2006.
108. Porter, A.L., Youtie, J., Shapira, P., Schoeneck, D.J., Tang, L., & Mehta, P., "Profiling Nano R&D," *Nano-Giga Challenges*, Phoenix, April, 2007.
109. Porter, A.L, Schoeneck, D.J., Bhaskarabhatla, A.J., Youtie, J., and Libaers, D., Explorations in Research and Innovation Systems Assessment: Where Is Nano Going?, *The Atlanta Conference on Science and Technology Policy 2006 – US-EU Policies for Research and Innovation*, Atlanta, 2006.
110. Porter, A.L., Schoeneck, D.J., Newman, N.C., Shapira, P., Youtie, J., Bhaskarabh, A., Libaers, D., & Kolar, R.G., "Nano R&D Profiles: A Deeper Look," *Science & Technology Indicators*, Leuven, Belgium, September, 2006.
111. Porter, A.L., Schoeneck, D.J., Youtie, J., Shapira, P., & Kolar, R.G., "Defining the Nanotechnology Domain in a Real Time Technology Assessment," *Technology Transfer Society 2006 Annual Conference*, Atlanta, September, 2006.
112. Porter, A.L., Tech Mining to Accelerate Radical Innovation, White Rose Health Innovation Partnership, Leeds, UK, February, 2007.
113. Roessner, D., Porter, A.L., Heberger, A., Cohen, A., and Perreault, M., Measuring the Interdisciplinarity of a Body of Research, *American Evaluation Association*, Baltimore, November, 2007.
114. Porter, A.L., and Kayat, M., Innovation Mapping - White space Analysis for Biomaterials in Complex Patent Landscapes, International Chemical Information Conference (ICIC), Barcelona, October, 2007.
115. Libears, D., Hicks, D., and Porter, A.L., A Taxonomoy of Small Firm Technology Commercialization, Tech Transfer Conference (T2), Riverside, CA., October, 2007.
116. Porter, A.L., Roessner, D., Heberger, A., Cohen, A., and Perreault, M., Measuring the Interdisciplinarity of a Body of Research, Workshop on Women, Minorities, and Interdisciplinarity, New York, November, 2007.
117. Shapira, P., Porter, A.L., Youtie, J., and Tang, L., Nanotechnology Questions, Methods, Metrics and Results: CNS, *Manchester International Workshop on Nanotechnology, Society and Policy*, Manchester, UK , Sep 9-12, 2008.
118. Rafols, I., and Porter, A.L., Youtie, J., and Tang, L., Nanotechnology as a Multi-polar Science, *Manchester International Workshop on Nanotechnology, Society and Policy*, Manchester, UK, Sep 9-12, 2008.
119. Porter, A.L., and Rafols, I., Science Overlay Maps: Easy-to-use Tools to help Visualize and Track Bodies of Research, *A Deeper Look at the Visualization of Scientific Discovery in the Federal Context [A Workshop at the National Science Foundation]*, Washington, DC, Sep 11-12, 2008.
120. Porter, A.L., and Rafols, I., Science Overlay Maps & Metrics: Analyzing Interdisciplinarity (Diversity & Coherence), *A Deeper Look at the Visualization of Scientific Discovery in the Federal Context [A Workshop at the National Science Foundation]*, Washington, DC, Sep 11-12, 2008.
121. Porter, A.L., Shapira, P., and Youtie, J. Nano Social Science: An Emerging Specialization?, *Nanotechnology and Society: Emerging Opportunities & Challenges – Networks, Risk and Knowledge Sharing*, University of Massachusetts, Amherst, Oct. 3, 2008.
122. Rafols, I. Meyer, M., Park, J-H., and Porter, A.L., The Cognitive Geography of Nanotechnologies: Location and Knowledge Flows of Nano-Research in the Map of Science, *Society for Social Studies of Science (4S)*, Rotterdam, August, 2008.
123. Porter, A.L., Visual Tech Mining, *International Association for Management of Technology*, Orlando, 2009 (April).
124. Porter, A.L., Locating Nanotechnology Among the Disciplines, Nano@Tech, August, 2009.
125. Rafols, I., Porter, A.L., and Meyer, M., A model of interdisciplinarity in nanotechnology: How local knowledge integration links a globally fragmented field, S-NET Conference, September, 2009
126. Rafols, I., Porter, A.L., and Leydesdorff, L., Science Overlay Maps: A New Tool for Research Evaluation, he Atlanta Conference on Science and Innovation Policy, Atlanta, 2009 (October).
127. Rafols, I., Porter, A.L., and Leydesdorff, L., The use of global maps of science in management and policy contexts,

*ENID Indicators Conference*, 2010.

128. Youtie, J., and Porter, A.L., Datamining researcher recognition of nanotechnology risk, *2nd Manchester International Workshop on Nanotechnology, Society & Policy*, Manchester, 2009 (October).
129. Pfirman, S., and Porter, A.L., Journal of Geophysical Research Publications: Community Characteristics, *American Geophysical Union Conference*, San Francisco, 2010.
130. Porter, A.L., Newman, N.C., Rafols, I., and Garner, J., Interdisciplinary Research Assessment Tools, *Science of Team Science Meeting*, Chicago, 2010.
131. Porter, A.L., Research Assessment: Mapping & Measuring Interdisciplinarity *AAAS Symposium on Novel Methods for the Evaluation of Federal Research Programs*, Washington, April, 2010.
132. Porter, A.L., Huang, L., Guo, Y., and Robinson, D.K.R., Forecasting Innovation Pathways for New and Emerging Science & Technologies, Commercialization of Micro-Nano Systems Conference (COMS), Albuquerque, NM, 2010 (Aug.).
133. Porter, A.L., and Carley, S., Tracking the Integration and Diffusion of Knowledge: The Case of Nanotechnology Risk Research, Science and Technology Indicators (STI) Conference, Leiden, The Netherlands, 2010 (Sep).
134. Yegros-Yegros, A., Amat, C., D;Este, P., Porter, A.L., Rafols, I. (2010), Does interdisciplinary research lead to higher impact? *STI Conference (Science & Technology Indicators)*, Leiden, September.
135. Porter, A.L., Future Innovation Pathways, Conference on The role of local authorities in promoting innovation and technological development, Cuenca, Spain, 2010 (Oct.).
136. Porter, A.L., Guo, Y., and Huang, L. Integrating patent analysis with R&D and business analyses to forecast innovation prospects: Nano-enhanced solar cells, Patent Information Users Group PIUG 2010 Northeast Conference, New Brunswick, NJ, Oct. 12.
137. Porter, A.L., and Rafols, I., Science Overlay Maps: A New Research Evaluation Tool, American Evaluation Association Conference, San Antonio, November, 2010.
138. Porter, A.L., and Rafols, I., Measuring and Tracking Research Knowledge Integration, NSF SciSIP Workshop, Washington, DC, Oct. 19, 2010.
139. Guo, Y., Porter, A.L., and Huang, L., Empirically informing a technology delivery system model for an emerging technology: Illustrated for dye-sensitized solar cells, 4th International Seville Conference on "Future-oriented Technology Analysis (FTA)," May, 2011.
140. Carley, S., and Porter, A.L., Diffusion Score: Introducing a Counterpart to the Integration Score, *Atlanta Conference on Science and Innovation Policy*, 2011.
141. Gao, L. , Porter, A.L., Ma, T., Wang, W., Carley, S., and Zhang, X., Measuring the Interdisciplinarity of Nano-Biosensor Research based on Citation Analysis, *Atlanta Conference on Science and Innovation Policy*, 2011.
142. Roessner, D., Carley, S., Porter. A.L., Nersessian, N.,Validating Measures of Interdisciplinarity: Linking Bibliometric Measures to Ethnographic Studies of Engineering Research Labs, Atlanta Conference on Science and Innovation Policy 2011.
143. Yegros-Yegros, A., Amat, C.B., D'Este, P., Porter. A.L., and Rafols, I., Does interdisciplinary research lead to higher scientific impact? *Atlanta Conference on Science and Innovation Policy*, 2011.
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145. Garner, J., and Porter, A.L., Assessing the Human and Social Dynamics Program—Exceptional Cross-disciplinarity, *Atlanta Conference on Science and Innovation Policy* 2011.
146. Cunningham, S. W. and J. H. Kwakkel (2011), "Visualizing Geo-Spatial Data in Science, Technology and Innovation," *First Global Tech Mining Conference*, Sept, Atlanta GA.
147. Guo, Y., Huang, L., Zhang, L., Zhu, D., and Porter, A.L., "Up-to-down" Science & Technology planning: a new approach based on patent data and technology roadmapping, *Global TechMining Conference*, Atlanta, 2011.
148. Carley, S., and Porter, A.L., A New Measure of Knowledge Diffusion, American Evaluation Association Conference, Anaheim, 2011.
149. Wang, W., Porter, A.L., Rafols, I., Newman, N.C., Liu, Y., Analyses of the Effect of Patent Category Diversity on Patent Quality, American Evaluation Association Conference, Anaheim, 2011.
150. Porter, A.L., Chair & Organizer, *Measuring Research Interdisciplinarity and Knowledge Diffusion*, American Evaluation Association Conference, Anaheim, 2011.
151. Jan Youtie, Philip Shapira, Sanjay Arora, Porter Alan, Ying Guo, Lu Huang, Douglas Robinson, Juan Rogers and Luciano Kay - Anticipating Future Commercial Applications of Nanotechnology, S.NET Conference, Tempe, AZ, 2011.
152. Alan L. Porter, Ying Guo, Lu Huang, Douglas K.R. Robinson, Forecasting Innovation Pathways: The Case of Nano-enhanced Solar Cells, S.NET Conference, Tempe, AZ, 2011.
153. Jan Youtie and Alan Porter, Chairs and Organizers, Using Large-scale Datasets to Understand the Trajectories of

Emerging Technologies, S.NET Conference, Tempe, AZ, 2011.

154. Carley, S., Porter, A.L., and Tang, L., Testing for Nano EHS Convergence at the State Level Carley-Porter-Tang [poster].
155. Porter, A.L., Ma, T., and Guo, Y., Patents+ in Newly Emerging Science & Technology: Tracking emergence of Dye-Sensitized Solar Cells, *Patent Statistics for Decision Makers Conference*, Alexandria, VA, Nov 16-17, 2011.
156. Zhang, Y., Porter, A.L., Guo, Y., and Zhou, X., Discovering Emerging Technology Trends: With TRIZ and Technology Roadmapping, *Global Tech Mining Conference,* Montreal, 2012.
157. Robinson, D.K.R., Zhou, X., Guo, Y., and Porter, A.L., Tracing promising nanotechnologies for diseases prevalent in ageing populations, *Global Tech Mining Conference,* Montreal, 2012.
158. Guo, Y., and Porter, A.L., S&T-Function-Application Cross-charting: An approach to visualize the bridges across the gap between R&D and applications, *Global Tech Mining Conference,* Montreal, 2012.
159. Porter, A.L., Enriching Research Assessment on Interdisciplinarity [Session], *American Evaluation Association Conference*, Minneapolis, Oct., 2012.
160. Arora, S., Porter, A.L., Youtie, J., and Shapira, P., Capturing new developments in an emerging technology: An updated search strategy for identifying nanotechnology research output, *Global Tech Mining Conference,* Montreal, 2012.
161. Garner, J.G., Porter, A.L., and Teutonico, R., Visualizing cross-disciplinarity: assessing the US National Science Foundation Human & Social Dynamics Program, 17th International Conference on Science and Technology Indicators (STI), Montreal, Sep., 2012.
162. Porter, A.L., and Rafols, I., Interdisciplinarity: its bibliometric evaluation and its influence in research outputs, Grantees Conference for NSF's Science of Science and Innovation Policy (SciSIP), Washington, DC, Sep. 2012.
163. Garner, J.G., and Porter, A.L., Evaluating the Outcomes of Government Funded Research Programs: Measuring Interdisciplinarity through Bibliometric Analysis of the CMG Program *American Evaluation Association Conference*, Minneapolis, Oct., 2012.
164. Suominen, A., Carley, S., Toivanen, H., and Porter, A.L., Precision and recall in classifying scientific literature: comparing topic modelling to Kernel-based spectral clustering, *Global Tech Mining Conference*, Atlanta, September, 2013.
165. Palop, F., Porter, A.L., Molina, B. de Miguel, Avalos, A., Exploring enhancements in the research literature base through TechMining *Global Tech Mining Conference*, Atlanta, September, 2013.
166. O'Brien, J.J., Carley, S., and Porter, A.L., Keyword field cleaning through ClusterSuite: A term-clumping tool for VantagePoint software, *Global Tech Mining Conference*, Atlanta, September, 2013.
167. Zhang, Y., Zhu, D., Wang, X. Ma, J., and Porter, A.L., Bi-directional decision making innovation model for big data: combination of target-driven and data-driven methods, *Global Tech Mining Conference,* Atlanta, September, 2013.
168. Zhou, X., Porter, A.L., Robinson, D.K.R., Shim, M.K. (2013), Gauging system transformation and innovation pathways for an emerging technology – solid lipid nanoparticles (SLNs), *Atlanta Conference on Science and Innovation Policy*, Atlanta, September, 2013.
169. Porter, A.L., Schoenek, D.J., O'Brien, J.J., Solomon, G., Lakhani, H., and Dietz, J.S., Connections: Patterns of links between STEM education research and other disciplines, *Atlanta Conference on Science and Innovation Policy*, Atlanta, September, 2013.
170. Porter, A.L., Schoeneck, D.J., Solomon, G., Lakhani, H., and Dietz, J. (2013), Measuring and mapping interdisciplinarity: Research & evaluation on education in science & engineering ("REESE") and STEM, *American Education Research Association Annual Meeting*, San Francisco.
171. Zhang, Y., Porter, A.L., and Vicente Gomila, J.M.. Text Mining Methods for Consolidating Topical Factors: Topical Analyses, TRIZ, and Case Study on Dye-Sensitized Solar Cells, *Proceedings of The 8th International Conference on Webometrics, Informetircs and Scientometrics and 13th COLLENT*, 2012, Seoul, Korea.
172. Ma, J., and Porter, A.L. (2014), Making sense of a small world, *Patent Information Users Group (PIUG) Annual Conference*, Garden Grove, CA (April).
173. Stipelman, B.A., Hall, K.L., Okamoto, J., Berrigan, D., Hachey, M., Morgan, G., Stokols, D. Carley, S. and Porter, A.L. (2013), A bibliometric analysis assessing the impact of participation in a transdisciplinary tobacco research center on an investigator's research trajectory, *Science of Team Science Conference*, Evanston, IL (poster).
174. Palop, F., Porter, A.L., Molina, B. de Miguel, Avalos, A., Exploring enhancements in the research literature base through TechMining *Global Tech Mining Conference*, Atlanta, September, 2013.
175. Zhang, Y., Zhu, D., Wang, X. Ma, J., and Porter, A.L., Bi-directional decision making innovation model for big data: combination of target-driven and data-driven methods, *Global Tech Mining Conference*, Atlanta, September, 2013.
176. O'Brien, J.J., Carley, S., and Porter, A.L., Keyword field cleaning through ClusterSuite: A term-clumping tool for VantagePoint software, *Global Tech Mining Conference*, Atlanta, September, 2013.
177. Zhou, X., Porter, A.L., Robinson, D.K.R., Shim, M.K. (2013), Gauging system transformation and innovation pathways for an emerging technology – solid lipid nanoparticles (SLNs), *Atlanta Conference on Science and Innovation Policy*,

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178. Porter, A.L., Schoenek, D.J., O'Brien, J.J., Solomon, G., Lakhani, H., and Dietz, J.S., Connections: Patterns of links between STEM education research and other disciplines, *Atlanta Conference on Science and Innovation Policy*, Atlanta, September, 2013.
179. Porter, A.L., Schoeneck,D.J., Solomon, G., Lakhani, H., Dietz, J., and O'Brien, J., Assessing Science, Technology, Engineering and Mathematics (STEM) Education (ED) research, Annual Conference of the American Evaluation Association, Washington, DC, 2013 (Oct.).
180. Porter, A.L., Research knowledge pattern assessment, Annual Conference of the American Evaluation Association, Washington, DC, 2013 (Oct.).
181. Zhang, Y., O'Brien, J., Carley, S.F., Porter, A.L., Youtie, J., and Zhou, X. Extracting topical content from research publication and patent text, Annual Conference of the American Evaluation Association, Washington, DC, 2013.
182. Lahoti, G., Porter, A.L., Youtie, J., Wang, B., Zhang, C., and Hicks, D.M., (2014), Integrated methodology for finding emerging technologies using publications, patents, and roadmaps, *Global Tech Mining Conference*, Leiden, The Netherlands.
183. Huang, Y., Guo, Y., Porter, A.L., Zhou, X., and Zhu, D. (2014), Research on commercial potential evaluation of emerging technology, *Global Tech Mining Conference*, Leiden, The Netherlands.
184. Zhou, X., Porter, A.L., and Zhu, D. (2014), Aiding by text mining approach to gauge innovation pathways for two solid lipid nanoparticles (SLNs) applications, *Global Tech Mining Conference*, Leiden, The Netherlands.
185. Yang, F., Guo, Y., Guo, J., Porter, A.L., and Zhou, X., (2014), An empirical study on the patent early warning system using patent maps, *Global Tech Mining Conference*, Leiden, The Netherlands.
186. Ma, J., and Porter, A.L., (2014), Identifying potential opportunities for emerging technologies by using literature linkages, *Future-oriented Technology Analysis (FTA) Conference*, Brussels.
187. Huang, Y., Zhu, F., Guo, Y., Porter, A.L., and Zhu, D. (2014), Identifying technology evolution pathways based on tech mining and patent citation network – Illustrated for Dye-Sensitized Solar Cells, *Future-oriented Technology Analysis (FTA) Conference*, Brussels.
188. Zhang, Y., Chen, H., Zhang, G., Lu, J., Porter, A.L.,and Zhu, D. (2014), Insights on technology development trend topic clustering and forecasting, , *Future-oriented Technology Analysis (FTA) Conference*, Brussels.
189. Ma, J., Porter, A.L., and Abrams, N. (2015), Classifying Biomedical Text for Mining Keyword Correlations and Technology Opportunities Analysis, *Global Tech Mining*, Atlanta.
190. Lahoti, G., Kim, M.C., Youtie, J., Porter, A.L., Zhang, C.,Wang, B., and Hicks, D. (2015), A scientometric comparative study of single-walled and multi-walled carbon nanotubes research, *Association for Information Science & Technology Annual Meeting (ASIST*), St. Louis (November).
191. Huang, Y., Porter, A.L., Guo, Y., and Zhu, D. (2015), Validating Emerging Technology Forecasts: Revisiting Earlier Analyses on Dye-Sensitized Solar Cells, *Atlanta Conference on Science and Innovation Policy*, Atlanta, (September).
192. Ma, P., Wang, X. Wang, Z., Zhu, D., Porter, A.L., Vicente-Gomila, J.M., an Mitkova, L. (2015), Combining SAO semantic analysis and morphology analysis to identify technology opportunities: A case in Dye-Sensitized Solar Cells, *Atlanta Conference on Science and Innovation Policy*, Atlanta, (September).
193. Huang, Y., Lu, Qi Zhu, D., Porter, A.L., and Wang, X. (2016), Early insights of Emerging Sources Citation Index (ESCI): a bibliometric analysis and overlap mapping method, *Global Tech Mining Conference*, Valencia, Spain (Sep.).
194. Liu, J., Porter, A.L., Zhang, Z., and Guo, H. (2016), Comparison of different "window-size" key phrase co-occurrence for knowledge representation, *Global Tech Mining Conference*, Valencia, Spain (Sep.).
195. Youtie, J., Porter, A.L., Solmon, G.E.A., and Carley, S.J. (2015, June), Connections: STEM educational research communities, knowledge transfer, and contributions to innovation pathways, *SciTS (Science of Team Science Conference*, Bethesda, MD.
196. Solomon, G.E.A., Porter, A.L., and Carley, S. J. (2015, June), Cross-disciplinary research knowledge flows: How multidisciplinary are articles in multidisciplinary journals?, *SciTS (Science of Team Science Conference)*, Bethesda, MD.
197. Solomon, G., Milesi, C., Brown, K., Schneider, B., Wells, J., Steketee, M., Frechtling, J., Porter, A.L. (2015, June), How methodology reflects disciplinarity in education research funded by NSF, *SciTS (Science of Team Science Conference)*, Bethesda, MD.
198. Abrams, N., Belter, C., Corrigan, J.G., Hsu, E.R., Lu, Y-L., Porter, A.L., and Grodzinski, P. (2015, June), Assessing the effectiveness of the NCI's Alliance initiative in generating multidisciplinary scientific outputs and enabling clinical translation of nanotechnologies developed in academia, *SciTS (Science of Team Science Conference*), Bethesda, MD.
199. Porter, A.L. 2016, Tracking technical emergence: Can we predict future R&D emphases?, *Patent Information Users Group (PIUG)—Northeast Meeting*, Sep. 27, Iselin, NJ.
200. Kwon, S., Porter, A.L., Solomon, G., and Youtie, J. (2016), Knowledge flow between Cognitive Science and Educational Research, *American Evaluation Association Meeting*, Atlanta, October.
201. Solomon, G., Youtie, J., Kwon, S., Carley, S., and Porter, A.L. (2016), Benchmarking connections between Educational

Research and Cognitive Science: Implications for evaluations of federal research funding programs, *American Evaluation Association Meeting*, Atlanta, October.

202. Carley, S., Solomon, G., Youtie, J., and Porter, A.L., (2016), The credibility of policy reporting across learning disciplines: a case study of 'How People Learn,' American Evaluation Association Meeting, Atlanta, October.
203. Porter, A.L., Newman, N.C., Kwon, S., Schoeneck, D. Porter, A.L., and Carley, S. (2016), Tracking topical emergence for research evaluation, *American Evaluation Association Meeting*, Atlanta, October. [poster].
204. Porter, A.L., Garner, J., Carley, S., and Newman, N.C. (2017), Auto-identification of high emergence patents, *Patent Information Users Group (PIUG) Conference*, Atlanta.
205. Youtie, J., Carley, S., Porter, A., and Shapira, P. (2017), Tracking researchers and their outputs: New insights from ORCID iDs, *Global Tech Mining Conference*, Atlanta (Oct.).
206. Carley, S., Porter, A., and Youtie, J. (2017), A multi-field approach to the author uncertainty problem, *Global Tech Mining Conference*, Atlanta (Oct.).
207. Lahoti, G., Porter, A.L., Zhang, C., Youtie, J., and Wang, B. (2017), Tech mining to validate and refine a technology roadmap. *Global Tech Mining Conference*, Atlanta (Oct.).
208. Zhang, Y., Chiavetta, D., Porter, A.L., Newman, N., and Cunningham, S. 2017), Interactions between data science and policy analysis: Evidence from the perspective of bibliometrics, *Global Tech Mining Conference*, Atlanta (Oct.).
209. Porter, A.L., Newman, N., Kwon, S., and Schoeneck, D. (2017), Extracting component information from abstract records for further analyses, *Global Tech Mining Conference*, Atlanta (Oct.).
210. Zhang, Y., Porter, A.L., Cunningham, S.W., Chiavetta, D., and Newman, N.C., (2018), What is the gap of exploiting data analytics for policy-making? Insights from bibliometrics, *Future-oriented Technology Analysis (FTA) Conference*, Brussels (poster).
211. Porter, A.L., Wang, Z., Youtie, J., Newman, N.C., Garner, J., and Carley, S.F. (2018). Indicators of Technological Emergence, *Future-oriented Technology Analysis Conference*, Brussels.
212. Burmaoglu, S., Porter, A.L., & Souminen, A. (2018), What is technology emergence? A micro level definition for improving tech mining practice, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Honolulu.
213. Porter, A.L., Youtie, J., and Newman, N.C. (2018). R&D emergence indicators, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Honolulu.
214. Porter, A., Youtie, J., Carley, S., Newman, N., and Murdick, D. (2018). Contest: Measuring tech emergence, *23rd International Conference on Science and Technology Indicators (STI)*, Leiden, The Netherlands, Sep. 12-14, Paper #232.
215. Solomon, G., Youtie, J., Carley, S., and Porter, A., (2019), What people learn about How People Learn, *American Education Research Association* Conference, Toronto (April).

## III. Service

### A. Professional Activities

1. Member, AAAS, 1973 - 1995
2. Member, American Psychological Assn., 1973-83.
3. Member, Human Factors Society, 1971-79.
4. Member, Human Factors Society Committee on Human Factors for Human Welfare, 1973.
5. Member, International Society for Technology Assessment, 1974-77.
6. Member, Sigma Xi, 1975-
7. Member, Society for Social Studies of Science, 1977-82.
8. Local arrangements committee, Society for Social Studies of Science, 1981.
9. Member, American Society for Engineering Education, 1977-
10. Program Chairman, ASEE Engineering and Public Policy Division, 1981-82. {by election.}
11. Chairman, ASEE Engineering and Public Policy Division, 1982-83. {by election.}
12. Member, The Institute of Management Sciences, 1977 -
13. Transportation Research Board (National Academy of Science), Committee on Organization and Administration, 1975-76.
14. Member, IEEE - Systems, Man, and Cybernetics Society, 1981-
15. Chairman, IEEE - SMC, Technology Forecasting Committee, 1981-93
16. Host to Francis Y. Murray of the Center for Strategic and

International Studies, for the Thomas Alva Edison Foundation,
Atlanta, 1976.

17. International Association for Impact Assessment, Co-founder; Secretary (by election), 1981-84; 1984-87; Executive Director 1987-89; President (Pres-Elect, Pres, Past-Pres progression - 1994-97)
18. Co-Editor-in-Chief, Impact Assessment Bulletin, 1981-1984.
19. Participant, Workshop to Critique the National 5-year Outlook for Science and Technology, 1982.
20. Co-chair, Annual Conference, International Association for Impact

Assessment, Utrecht, The Netherlands, 1985.

21. Panel Member, Evaluation of NIH - Medlars Database, 1989
22. Program Committee, International Conference on Management of Engineering & Technology, Portland, 1991.
23. Program Chairman, Annual Conference, International Association for Impact Assessment, Shanghai, 1993.
24. Member, National Academy of Sciences/National Academy of Engineering Committee on NRC Research Associates Career Outcomes, 1992.
25. American Assn for the Advancement of Science -- Representative to Engineering Section for IAIA, 1988-2001; to Social Science Section for INFORMS, 1996-; to the Consortium of Affiliates for International Programs for IAIA, 1989-95.
26. International Association of Technology Assessment and Forecasting Institutions [IATAFI], Executive Board, 1997-2003.
27. University of Technology, Malaysia, Technology Policy Research Unit, Advisory Board, 1997-2000.
28. Chair, International Symposium on Forecasting, Atlanta, 2001.
29. Co-chair, Global Tech Mining Conferences, Atlanta, 2011 – 2017 (annually).

**B. <u>On-Campus Committees</u>**

1. Social Management of Technology Program Committee University of Washington, 1973-74.
2. Sloan Grant Oversight Committee, College of Engineering, University Washington, 19
3. Industrial Associates Committee, ISyE, Georgia Tech, 1975.
4. ISyE, Research Evaluation Committee, 1977-78.
5. Georgia Tech Student Honor Committee, 1977-80; Chairman, 1979-80 (prepared and distributed the first guidelines on academic honesty).
6. ISyE, Director's Advisory Committee, 1978-79.
7. College of Engineering, Dean's Promotion and Tenure Advisory Committee, 1978-79.
8. ISYE, Undergraduate Curriculum Committee, 1979-81; Chairman, 1980-81.
9. Multidisciplinary Environmental Engineering Committee, College of Engineering, 1981-
10. Technology Policy and Assessment Center, 1981-; Co-director, 1983-1989; Director 1989-
11. Georgia Tech Library Subcommittee, 1984-88.
12. ISyE, Promotion and Tenure Committee, 1984-89; Chair 1987-88
13. ISyE, Undergraduate Curriculum Committee, 1984-86.
14. Served on Ph.D. committees for Y. Barlas, M. Lee, B. Thorn, R. Dienisch (Mgmt), P. Whelan; M.S. committees for D. Cancelleri and S. Diehl (TASP), J, Underwood (Psy); ISyE M.S. committees for L. Sims, M.A. Lipscomb, I. Rogoff, W.F. Tufts, S. Ekong
15. Georgia Tech Research Advisory Council 1987-90
16. Management & Public Policy Restructuring Committee 1988-89
17. ISyE Advisory Committee 1988-90
18. Management of Technology Program Committee Chair, 1991-93; Member, 1993-
19. School of Public Policy Director Search Committee, 1991-93
20. Management of Technology Director Search Committee, 1992-93
21. ISyE Advisory Committee, 1992-94; 1995-97
22. GT Materials Council, 1994-97
23. GTRI/EDI Emerging Industries Committee, 1994-95
24. Executive MS in MOT Faculty Oversight Committee, 1994-
25. GT Faculty Honors Committee, 1997-98.
26. Public Policy Promotion & Tenure Committee, 1998-99.
27. GT Focused Research Program Review Panel, 1998.
28. ISyE, Strategic Planning Implementation Committee, 1999-2000; Graduate Committee, 1998-2001.
29. SPP, several special P&T & critical review committees [Cozzens, Shapira, Kingsley, Rogers], 1999-2000.
30. College of Engineering, Engineering Management Committee, 2000.

31. TPAC, organized “Knowledge Management” speaker series, 1998-1999.
32. Dupree COM, Management of Technology Committee, 1999-2000.
33. GT Intellectual Property Committee, 2000-2002.

## C. Consulting

1. Maryland Department of Parole and Probation, policy analysis, 1979-80,
2. U.S. Department of Commerce, Technology Commercialization Centers, 1980.
3. East-West Center, Review of Technology Assessment Project, 1983.
4. Coca-Cola, Tech Forecasting and Innovation Processes, 1985-86; 1997-99.
5. Government of Egypt, Tech Forecasting, 1985
6. National Academy of Sciences, commissioned paper on "Measures of Engineering Quality," 1987
7. Search Technology, Inc., 1986-89
8. IBM, 1989-95
9. Government of Malaysia (Science Advisor), Tech Opportunities Analysis, 1991
10. Office of Technology Assessment, 1992
11. UN Branch for Science and Technology for Development, 1992-93
12. Botswana Technology Center, Tech Opportunities Analysis, 1993
13. Critical Technologies Institute (Rand Corporation), 1993-94
14. 3M, 1994
15. Rexam Graphics, 1994-96
16. SAIC, 1994-95
17. SRI, 1995-2000
18. Kodak, 1996
19. General Motors, 1997, 1999-2000
20. NIOSH, 1999
21. INT (National Technological Institute), Brazil, 1996-2000
22. FINEP, Brazil, 2001
23. Sensire, The Netherlands, 2002
24. National Academies (Keck Futures Initiative), 2004-09
25. Accenture, 2005
26. CGEE, Brazil, 2005

## D. Civic Activities

1. U.S. Army Reserve, private to First Lt. 1968-76.
2. Easter Seals Campaign, 1976.

Atlanta Retarded Children, fund-raising, 1977; Heart Association, 1984-

3. Representative, CalTech Alumni Fund, 1973-74, 1976-1980; 1982-85; First Fund Chairman for Georgia, 1976-78.
4. Chairman, E.S. Jackson School Science Fair, 1980-81.
5. Coach, Roswell Youth Basketball, 1981-83; Coach, YMCA Youth Basketball, 1983-88.
6. Sunday School teacher, Roswell Presbyterian Church, 1985-86.
7. Seminars for Georgia Tech Presbyterian Center; Oglethorpe University on Technology and changing the work ethic, 1991.
8. Chattahoochee High School Science Fair Judge, 1994, 1996
9. Sunday School leader, Roswell Presbyterian Church, 1998-2001.

# IV. OTHER CONTRIBUTIONS

## A. Workshops & Seminars

1. Lecturer, Technology Assessment and Impact Analysis short course, Industrial Management Center, Hilton, Head, SC, 1975; Associate Director, Castine, ME, 1976.
2. Thomas Walter Center for Technology Management, Auburn University, 1992.
3. Engineering & Technology Management Program Seminar Series, Portland State University, 1992.
4. Argonne National Lab, 1994.
5. "Management of Technology," Monterrey Tech, Monterey, Mexico, 1994.

6. "Technology Opportunities Analysis," Kodak, Rochester, NY, 1995.
7. “Technology Opportunities Analysis,” Institute for National Technology, Rio de Janeiro, 1997.
8. “Technology Foresight: Scenario Management, Monterrey Tech, videoconference from Orlando, 1998.
9. ‘Using Publication & Patent Information in Managing Technology,” Universidad de Anahuac, Mexico City, Mexico, 1998.
10. “Technology Opportunities Analysis,” National Science Foundation, Washington, 1998.
11. “Technology Opportunities Analysis on Public Health Information,” Centers for Disease Control, Atlanta, 1998.
12. “Technology Opportunities Analysis,” Institute for National Technology [INT], Rio de Janeiro, and Brazilian Institute for Information in Science & Technology [IBICT], Brasilia, 1998.
13. “Indicators of Global Competitiveness,” Ministry of Science & Technology, Brasilia, 1998.
14. “Technological Competitiveness Indicators to Aid Public Policy,” Federal University, Salvador, Brazil, 1999.
15. “Looking Out Through the Information Glass: 90% Full or 90% Empty?” Proctor & Gamble, 1999.
16. “Technology Opportunities Analysis,” NIST, 1999.
17. “Technology Opportunities Analysis,” Columbian Chemicals, 1999.
18. “Glass Technologies Opportunities Analsyis,” Edison Industrial Systems Center, Toledo, 1999.
19. “Using Text Mining (TOA) with Technology Roadmapping,” MATI Consortium, Atlanta, 2000.
20. “Technology Opportunities Analysis,” SGL-Carbon Workshop, Atlanta, 2000.
21. “Why Don’t Managers Want Our Technology Analyses?”, Center for Innovation Management Studies, Raleigh, 2000.
22. "Recent Developments in Technology Intelligence & Foresight for Technology Management," Fraunhofer Institute for Systems and Innovation Research (ISI), Karlsruhe, Germany, 2002.
23. Technology Impact Assessment, CGEE (Centro de Gestao e Estudos Estrategicos), Brasilia, July, 2005.
24. High Tech Indicators, CGEE (Centro de Gestao e Estudos Estrategicos), Brasilia, July, 2005.
25. Technology Intelligence: Tech Mining, Embraer, Sao Jose de Campos, Brasil, July, 2005.
26. Technology Intelligence: Tech Mining – Prospeccao Tecnologica, University Federale, Sao Carlos, Brazil, July, 2005.
27. Tech Mining, May, 2006, Beijing
- Lab of Knowledge Discovery and Data Analysis, Beijing Institute of Technology
- Institute of Scientific and Technical Information of China (ISTIC)
- Library of Chinese Academy of Sciencs (CAS)
- Ministry of Information Industry, Center for Semiconductor Intellectual Property (CSIP)

28. Tech Mining, August, 2006, Brazil
- Fiocruz, Rio de Janeiro
- FBTS, Rio de Janeiro
- LACTEC, Curitiba

29. Analysis of Emerging Technologies, Helsinki, 2007
30. Shortcourse on Technical Intelligence and Future-oriented Technology Analysis, Universidad Nacional de Colombia, Bogota.
31. Tech Mining with Science Overlay Maps, Shanghai Jiaotong University, 2008
32. Tech Mining Seminar, Thomson Reuters hosting, Beijing, 2008
33. “Trends in Technology Competitiveness” by Porter, Roessner, and Newman – CNO Strategic Studies Group, Naval War College, Newport, RI, 2008
34. Youtie, J., and Porter, A.L., Conducting research on emerging innovation systems through bibliometric and patent analyses, S.NET Conference Workshop, Seattle, September, 2009.
35. Measuring Interdisciplinarity and Mapping Research Emphases from research publication, American Evaluation Association, 23d Annual Conference, Orlando, November, 2009.
36. Porter, A.L., Nano Research Profiling, Nano College, SUNY-Albany, February, 2010.
37. Porter, A.L., Measuring Interdisciplinarity: The ROLE/REESE Program, 2010 REESE PI Meeting, Washington, DC.
38. Porter, A.L., Research Assessment: Science Mapping & Measuring Interdisciplinarity, AAAS Symposium on Novel Methods for the Evaluation of Federal Research Programs, 2010, Washington, DC.
39. Porter, A.L., Research Profiling – “Tech Mining” Web of Science topical search results; Seminar Series on Science & Innovation, Instituto de Bestion de la Innovacion y del Conocimiento, INGENIO, Universidad Politecnica de Valencia, Spain, 2010 (Oct.)
40. Porter, A.L., and Carley, S., Three Generation Research Knowledge Tracking: Publication & Citation Analyses Demonstration Workshop, American Evaluation Association Conference, San Antonio, November, 2010.
41. Porter, A.L., Tech Mining with TDA, ISTIC, Beijing, Dec., 2010

42. Porter, A.L., Research Profiling & Knowledge Tracking, Chinese Academy of Sciences Library, Beijing, Dec., 2010.
43. Porter, A.L., Mapping Research Networks, National Library, Chinese Academy of Sciences, May, 2012. [variation on this to Shandong Polytechnic University too]
44. Porter, A.L. Tech Mining for Forecasting Innovation Pathways, Beijing WUZI University, May, 2012.
45. Porter, A.L., Patent Analysis for Future-oriented Technology Analysis, National Technological Institute, Rio de Janeiro, August 30, 2012.
46. Porter, A.L., and Chiavetta, D., Tech Mining for Forecasting Innovation Pathways, National Research Council of Canada, Montreal – 2 days, Sep. 10-11, 2012.
47. Porter, A.L., Extracting Topics and Contributors from Abstract Records for Research Assessment [Demonstration Workshop], *American Evaluation Association Conference*, Minneapolis, Oct., 2012.
48. Porter, A.L., (2013), "Tech Mining" R&D Literature –for Research Assessment, Institute for Science & Technology Information of China, Beijing.
49. Porter, A.L., (2013), "Tech Mining" R&D Literature – for Research Assessment & Forecasting Innovation Pathways, Shanghai Advanced Research Institute (SARI), Chinese Academy of Sciences.
50. Porter, A.L., (2013), "Forecasting Innovation Pathways," *Technology Forecasting Perspectives Workshop*, MITRE, Mclean, VA.
51. Porter, A.L., and Newman, N.C., Tech Mining, *Portland International Conference on Management and Engineering Technology (PICMET)*, San Jose, California, 2013.
52. Porter, A.L., Zhang, Y., Carley, S., and Youtie, J., Topic Extraction Methods, 14th International Society of Scientometrics and Informetrics (ISSI) Conference, Vienna, 2013.
53. Porter, A.L., Ma, J., and Robinson, D.K.R., (2014), Forecasting Nano-Enabled Drug Delivery (NEDD) Innovation Pathways, *Pharmaceutics & Novel Drug Delivery Systems*, San Antonio, TX (March) – presentation & workshop.
54. Porter, A.L., (2014), Analyzing patent topical information to identify technology pathways and opportunities: Nano-Enabled Drug Delivery (NEDD), *Industrial Research Institute, Information Systems/Information Technology Meeting*, March, Atlanta.
55. Porter, A.L. (2014), Future-oriented Technology Analysis, *Analytical Methods for Technology Forecasting*, Library of Congress FEDLINK, Washington DC (March 6).
56. Porter, A.L. (2014), Forecasting Innovation Pathways – using R&D publication & patent analyses, Thomson Reuters Academic Workshop, Tsinghua University Workshop (May 7).
57. Porter, A.L. (2014), Tech mining to forecast innovation pathways: Case study on Nano-Enabled Drug Delivery, *International Workshop on Management of Innovation and Technology and Data Science*, Zhejiang University, Hangzhou (May 16).
58. Porter, A.l., (2014), Future-oriented Technology Analysis – Forecasting Innovation Pathways, Lanzhou University (May 15), Lanzhou.
59. Porter, A.L., and Ma, J. (2014), Patent analysis for Corporate Competitive Intelligence, *From Following to Leading – Science and Technology Innovation and International Competitiveness Conference*, Peking University, Beijing.
60. Porter, A.L., and Ma, J. (2014), Nano-Enabled Drug Delivery (NEDD): Exploring cancer treatment opportunities, Nano@Tech, Georgia Tech (Sep.). https://smartech.gatech.edu/handle/1853/52399.
61. Rogers, J., and Porter, A.L., (2013; 2014), Workshop on use of Tech Mining tools in portfolio assessment, National Cancer Institute, Washington, DC.
62. Porter, A.L., Youtie, J., Newman, N.C., Kay, L., and Kwon, S. (2014), Special Workshop: Patent Mapping, *Global Tech Mining Conference*, Leiden, Netherlands, September.
63. Porter, A.L., Youtie, J., Robinson, D., Rafols, I., Zhang, Y., Ma, J., and Huang, Y., (2014), Forecasting Innovation Pathways Workshop, *Future-oriented Technology Analysis (FTA) Conference*, Brussels.
64. Porter, A.L., Robinson. D.K., and Huang, Y. (2015) Tech Mining for "FIP 2.0" – The case of 'Big Data' – *5th Annual Global Tech Mining Conference*, Atlanta (September). [3-hour workshop exploring advanced Forecasting Innovation Pathway methods]
65. Porter, A.L. (2017), Impact assessment of data sharing, *NIH Workshop on the Value of Data Sharing*, National Institutes of Health, Bethesda, MD (October 13).

## B. Special Activities

1. Reviewer: NSF Proposals (Engineering; Ethics, Values & Society; Office of Interdisciplinary Research; RANN; Research, Evaluation & Dissemination; Social Sciences; Science Resources Studies; Technology Assessment and Risk Analysis; Policy Research and Analysis; Research in Science and Technology); Elsevier and North Holland (books); AAAS Symposium, Australian Research Council; Macmillan (books); Congressional Quarterly; Quality in Liberal

Learning Program; U.S. Congress, Office of Technology Assessment; University of Brussels (book chapter); John Wiley (books), Kluwer (books), PICMET conference, International Conference on Technology Policy and Innovation.

2. Faculty Promotion Review: Penn State University (Logistics), Auburn University (Management of Technology), University of Virginia (Systems Engineering); Howard University (Systems Engineering).

3. Testimony, review committee, College of Engineering, University of Washington, 1982.

4. As Chairman, Engineering and Public Policy Division, ASEE, issued call for engineering participation in national technology policy, Engineering Education News, 1982.

5. Produce videotape on "Systems Engineering the Office: for the Sloan project on Resourceful Exchange: Technology and the Liberal Arts, Fall, 1985.

6. H. Shi, senior engineer from China, hosted visiting scholar for 1984 to study technology assessment.

7. X.Y. Jin, senior R&D manager from China, hosted visiting scholar 1985-86; 1991-96 to study technology opportunities analysis.

8. Testimony, U.S. Commission on Improving the Effectiveness of the UN, 1993.

9. Uri Reychav, senior R&D manager from Israel, hosted visiting scholar, 1994-95.

10. M. Ramos, hosted visiting professor from Venezuela (1 month), 1995.

11. C. Park, hosted visiting professor from Korea, 1995-96.

12. J. Hoh, hosted visiting senior researcher from Korea, 1995-96.

13. D. Zhu, hosted visiting professor from China, 1996-97.

Testimony, "What Critical Infrastructures: A Futures Perspective," President's Commission on Critical Infrastructure Protection, 1997.

International Association for Impact Assessment, Committee to select awardees for The Netherlands support program, 1997-99.

Metropolitan Atlanta Chamber of Commerce/Supercomm Executive Business Roundtable, 2001.

Visiting Professor, Technology, Policy & Management, Technical University of Delft, 2002 (4 months).

Helsinki Institute of Science and Technology Studies -- Scientific Advisory Committee, 2004

Visiting Professor, Shanghai Jiao Tung University, 2009-

Visiting Professor, Beijing Institute of Technology, 2009-

Kay, L., Porter, A.L., Rafols, I., Youtie, J., and Newman, N. (2014), "X.8 Mapping Graphene Science and Development: Focused Research with Multiple Application Areas" Online map in "10th Iteration (2014): The Future of Science Mapping," Places & Spaces: Mapping Science, edited by Katy Börner and Samuel Mills. Available at: http://scimaps.org/mapdetail/mapping_graphene_sci_179.

## V. NATIONAL AND INTERNATIONAL PROFESSIONAL RECOGNITION

### A. Honors and Awards

California Institute of Technology Scholarship, 1963-64
California State Scholarship, 1963-66
National Science Foundation undergraduate research grant, 1965-66
Kennecott Copper Company Scholarship, 1966-67
National Institute of Mental Health Fellowship, 1967-70
American Men and Women of Science, 1976
Who's Who in the South and Southwest, 17th ed. 1979
Who's Who in the Technology Today, 2nd Ed., 1980
Guide to Energy Specialists of the World Environment Center (United Nations), 1981
Who's Who in Frontier Science and Technology, 1983
Personalities of America, 1985
Contemporary Authors, 1985
Marquis' Who's Who in Emerging Leaders, 1987
Who's Who in Engineering, 1986
International Authors and Writers Who's Who, 1986
Dictionary of International Biography, 1986
Who's Who in Science and Engineering, 1992
Bellcore Advisory Council, 1992-94
Who's Who in America, 1996-
Portland International Conference on Management of Engineering & Technology [PICMET], advisor on a best student paper [Robert Watts, 1997][Xiao Zhou, 2013][Ying Huang, 2016]
International Association for Management of Technology (IAMOT) Research Award 2003; 2008; 2013
International Association for Impact Assessment (IAIA) Rose-Hulman Award for Contributions to Impact Assessment, 2005
Georgia Tech Research Corporation "Big Data" Award, 2012
Portland International Conference on Management of Engineering and Technology (PICMET) Fellow, 2013
Portland International Conference on Management of Engineering and Technology (PICMET) Medal of Excellence, 2015 (presented in 2016)

**B. <u>Invited Conference Session Chairmanships/Panels</u>**

1. Porter, A.L., Chair, Session on "Alternative Designs for Technology Assessment," Second International Congress for Technology Assessment, Ann Arbor, 1976.
2. Porter, A.L., Chair, Session on "Technology Assessment," ORSA/TIMS Joint National Meeting, Atlanta, 1977.
3. Porter, A.L., Discussant, Session on "Patterns of Information Utilization in Public Agencies," American Society for Public Administration Conference, Atlanta, 1977.
4. Porter, A.L., Chair, Session on "Materials Policies and Engineering Education," American Society for Engineering Education, Baton Rouge, Louisiana, 1979.
5. Porter, A.L., Co-chair, Session on "Economic, Environmental and Social Impacts of Transportation," TIMS International Meeting, Honolulu, 1979.
6. Porter, A.L., Co-chair, two sessions on "Integrated Impact Assessment," AAAS Annual Meeting, San Francisco, 1980.
7. Porter, A.L., Chair, Session "Interdisciplinary Research: Policy and performance Issues," AAAS. Toronto, 1981.
8. Porter, A.L., Discussant, "Professionalism and Participation in Impact Assessement," Toronto, 1982.
9. Porter, A.L., Invited Participant, Workshop on the Five Year Outlook for U.S. Science and Technology, 1982.
10. Porter, A.L., Chair, Session "The PhD: Its Role in Engineering,: ASEE, Los Angeles, 1981.
11. Porter, A.L, Participant, Workshop to Critique the National 5-year Outlook for Science and Technology.
12. Porter, A.L., Chair, Presidential Addresses Session, International Association for Impact Assessment Annual Meeting, Washington, 1982.
13. Porter, A.L., Discussant, Session on "Engineering and the Five Year Outlook," ASEE, College Station, Texas.
14. Porter, A.L., Chair, Session "Technological Forecasting," IEEE-SMC, Seattle, 1982.
15. Porter, A.L., Chair, Workshop on "Forecast and Impact Assessment of High Technology Development: Robotics, Micro-electronics and Telecommunications," International conference on Social Impact Assessment: Advancing the State of the Art, Vancouver, B.C., 1982.
16. Porter. A.L., Chair, Session on Public Acceptance of New Technologies, Presidential Address, and Business Meeting, International Association for Impact Assessment Annual Meeting, Detroit, 1983.

17. Porter, A.L., Chair, Business Meeting, Engineering and Public Policy Division, American Society for Engineering Education Annual Meeting, Rochester, NY, 1983.
18. Porter, A.L., Chair, "Toxicology and Risk Assessment, American Association for the Advancement of Science, Los Angeles, 1985.
19. Porter, A.L., and Roessner, J.D., Chair, mini-plenary on "Engineering Education in an Age of International Competitiveness," American Society for Engineering, Atlanta, 1985.
20. Porter, A.L., Chair, "Economic Impact Assessment," International Association for Impact Assessment, Utrecht, the Netherlands, 1985.
21. Chair, "Business Applications," ORSA-TIMS Annual Meeting, Atlanta, Georgia 1985.
22. Chair, "Information Technology: Forecasting Impacts on Scientists, Engineers, and end Users," IEEE-Systems, Man, and Cybernetics, Annual Meeting, Tucson, 1985
23. Chair, "International Impact Assessment," American Association for the Advancement of Science, Philadelphia, 1986
24. Porter, A.L., Chair, "Technology Assessment," International Association for Impact Assessment Annual Conference, Barbados, 1987.
25. Porter, A.L., Chair, "Chinese Technology and Science Policy," AAAS Annual Meeting, San Francisco, 1989.
26. Porter, A.L., Chair, "Technology Assessment," IAIA Annual Conference, 1992.
27. Porter, A.L., Chair, "Impact Assessment and Sustainable Development," AAAS Annual Meeting, Atlanta, 1995.
28. Bailey, J. and Porter, A.L., Chair, "Impact Assessment Research Priorities," International Association for Impact Assessment, Durban, South Africa, 1995.
29. Porter, A.L., Chair, "Stretching the Frontiers: Toward Next Generation Technologies," World Future Society, Atlanta, 1995.
30. Porter, A.L., Panels (3), "Managing Health Technologies," INFORMS, Cincinnati, 1999.
31. Porter, A.L., Panel, "The Future of Tech Forecasting," PICMET, 1999.
32. Porter, A.L., Assessment, Values and New Approaches to Valuation Methods, IAIA, Boston, 2005.
33. Porter, A.L., Session Organizer & Chair, Assessing Research Interdisciplinarity and Knowledge Diffusion, Atlanta Conference on Science and Innovation Policy 2011.
34. Porter, A.L., Co-chair, Global TechMining Conference, Atlanta, 2011.

## B. Editorial and Reviewer Work for Technical Journals

Associate, Behavioral and Brain Sciences

Referee: Technology Analysis & Strategic Management; Technology and Culture; Social Studies of Science; IEEE Engineering Management; IEEE Transactions on Systems, Man and Cybernetics; IEEE Transactions on Education; IEEE Technology and Society; Merrill-Palmer Quarterly; Technological Forecasting and Social Change; Interdisciplinary Science Reviews; American Psychologist; American Sociologist; Knowledge; Evaluation and Program Planning; Impact Assessment Bulletin; Environmental Impact Assessment Review; Annals of Operations Research; Issues in Integrative Studies; Science, Technology, and Human Values; Operations Research & Industrial Engineering; R&D Management; Omega; Science & Public Policy; Impact Assessment; J Information Technology Management; Transportation Research Board; Technology Transfer Journal

Major Editorial Service:
Editor-in-Chief (co), *Impact Assessment Bulletin*, 1981-1984.
Associate Editor, *Technology Analysis and Strategic Management*, 1988-
North American Regional Editor, *International Journal of Foresight and Innovation Policy*, 2003-
IEEE Transactions on Engineering Management, 1985-
Technological Forecasting & Social Change, 1991-

Transformations (Warsaw), 1991-
JAI Research Annual in Public Policy Analysis & Management, 1990-.
The Environment (Nigeria), 1992-
Managing Technology Today, 1992-
Impact Assessment and Project Appraisal, 1998-
Associate Editor, *Information and Decision Technologies*, 1989-94.

Foreign Editor, *Science of Science & Management of Sciences & Technology* (Shanghai), 1990-.
Best Paper Committee, *Technological Forecasting and Social Choice*, 1996-99

Look at citations received (July 19, 2019)

- 219 records
- *H*-index = 31
- Sum of times cited = 3931
- Times cited without self-cites = 3358