

## **Curriculum Vitae**

**LEONARD WEISS**

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### **GENERAL CAREER DESCRIPTION**

Planning, executing, and managing projects in public policy development and legislative activity in both domestic and international, affairs; writing and speaking on policy and technical issues relating to energy and national security, the proliferation of weapons of mass destruction, and government management; academic scientific and applied mathematics research and teaching.

### **PROFESSIONAL ACTIVITIES**

2008- National Advisory Board, Center for Arms Control and Nonproliferation, Washington, DC

2007- Affiliated Scholar, Center for International Security and Cooperation (CISAC), Stanford University

2006-2007 Senior Science Fellow, Center for International Security and Cooperation (CISAC), Stanford University

Activities at CISAC have focused on policy research and history concerning nuclear nonproliferation, energy, and war powers.

1999- Private Consultant.

Consulting projects have included chairing and/or producing papers for advisory committees or conferences on weapons of mass destruction, nuclear energy, missile proliferation, and weapons in space.

1987-1999 Staff Director (1987-95) and Minority Staff Director (1995-1999), U. S. Senate Committee on Governmental Affairs.

- Directed and supervised all committee staff activities for former Chairman and Ranking Member Senator John Glenn (D-Ohio), including legislation, hearings, investigations, reports, budget, subcommittee structure, and personnel hiring and management.

- Chief advisor (1976-99) to Senator John Glenn on arms control and non-proliferation of weapons of mass destruction, science, technology, energy, environmental protection, government management, and federal regulation
- Areas in which I have written legislation or otherwise led legislative or investigational activity include:
  - Creation of new export laws involving nuclear, chemical and biological materials and equipment to prevent or reduce the proliferation of weapons of mass destruction, especially nuclear weapons and their associated delivery systems (missiles);
  - Creation of the Department of Energy (DOE) and oversight of its management, including hazardous and nuclear waste management;
  - Creation of the Defense Nuclear Facilities Safety Board to provide independent safety reviews at DOE nuclear sites;
  - Oversight of commercial nuclear reactor safety and radiation protection regulation;
  - Oversight of the Government Accountability Office and extension of its mandate;
  - Extension of labor and EEO laws to Congress via the Congressional Accountability Act;
  - Creation of Chief Financial Officers and Inspectors General in all major agencies of the US. Government to improve government efficiency and eliminate fraud, waste, and abuse;
  - Reform of federal government management and procurement practices;
  - Reform of federal regulatory procedures;
  - Extension of protections (informed consent) for human research subjects in medical and other experiments;
  - Reorganization of the Archives and Records Administration;
  - Reform of the Federal Civil Service Retirement System;
  - Reform of the Federal Employee Compensation System;
  - Creation of the Department of Veterans Affairs;

- Oversight of the US. Postal Service;
- Oversight of the US. Census Bureau;
- Creation of the JFK Assassination Records Review Board;
- Reform of the Presidential transition process.

1977-86 Staff Director (1977-81) and Minority Staff Director (1981-86), U. S. Senate Subcommittee on Energy, Nuclear Proliferation, and Government Processes

1969-78 Full Professor of Electrical Engineering and Applied Mathematics, University of Maryland, College Park, MD (tenured position)

1970-77 Research Mathematician and Acting Director of the Mathematics Research Center, Naval Research Laboratory, Washington, DC.

1966-69 Associate Professor of Applied Mathematics and Engineering, Brown University, Providence, RI. (tenured position)

1964-66 Assistant Professor of Applied Mathematics and Engineering, Brown University, Providence, R.I.

1962-64 Staff Scientist, Research Institute for Advanced Studies, Baltimore, MD.

### **FELLOWSHIP AWARDS**

Alfred P. Sloan Foundation Research Fellowship, 1966-68

IEEE Congressional Science Fellowship, 1976

John C. Stennis Congressional Staff Fellowship, 1993

CISAC/Stanford Science Fellowship, 2006

### **EDUCATION**

BSEE 1956 College of the City of New York

MSEE 1959 Columbia University

Ph.D. 1962 Johns Hopkins University

## PUBLICATIONS

1. "Integral Transforms and Time-varying Systems", Ph.D.Thesis, Johns Hopkins University, 1962. Available as "Representation and Analysis of Signals, Part XIV. Integral Transforms and Time-Varying Systems", E.E. Department, Johns Hopkins University, May, 1962.
2. "The Delta Function and the Fourier Integral", Proc. IRE, Vol. 50, No. 2, pp. 217-218, February, 1962.
3. "Prony's Method, Z-Transforms and Pade Approximation", (with R.N. McDonough), SIAM Review, Vol. 5, No. 2, pp. 145-149, April 1963.
4. "On A Question Related to the Control of Linear Systems", IEEE Transactions on Automatic Control, Vol. AC-9, No. 2, pp. 176-177, April 1964.
5. "Weighting Patterns and the Controllability and Observability of Linear Systems", Proc. of Nat'l. Academy of Science, Vol. 51, No. 6, pp. 1122-1127, June 1964.
6. "On the Foundations of Transfer Function Analysis", Int'l J. Engr. Sci., Vol. 2, No. 4, pp. 343-365, 1964.
7. "The Concepts of Differential Controllability and Differential Observability", J. of Math. Analysis and Applications, Vol. 10, No. 2, pp. 442-449, April 1965.
8. "Contributions to Linear System Theory", (with R.E. Kalman), Int'l J. Engr. Sci., Vol. 3, pp. 141-171, 1965.
9. "Dual Dynamical Systems and Their Representation by System Functions", Int'l J. of Control, Vol. 1, No. 5, pp. 475-485, 1965.
10. "On System Functions with the Property of Separability", Int'l J. of Control, Vol. 1, No. 5, pp. 487-496, 1965.
11. "On the Stability of Systems Defined over a Finite Time Interval", (with E.F.

- Infante), Proc. of the Nat. Acad. of Sci., Vo. . 54, No. 1, pp. 44-48, July 1965.
12. "Finite Time Stability under Perturbing Forces and on Product Spaces", (with E.F. Infante), IEEE Trans. on Auto. Control, Vol. AC-12, No. 1, pp. 54-59, 1967.
  13. "On the Controllability of Delay-Differential Systems", J. SIAM Control, Vol. 5, No. 4, pp. 575-587, 1967.
  14. "Sensitivity and Stability Analysis on a Finite Time Interval", Proc. Second IFAC Symposium on Sensitivity and Adaptivity, Dubrovnik, pp. A26-A36, 1968.
  15. "Converse Theorems for Finite Time Stability", J. SIAM Appl. Math., Vol. 16, No. 6, pp. 1319-1324, 1968.
  16. "On the Structure Theory of Linear Differential Systems", J. SIAM Control, Vol. 6, No. 4, pp. 659-680, 1968.
  17. "Dolezal's Theorem, Linear Algebra with Continuously Parametrized Elements, and Time-Varying Systems", (with P. Falb), Mathematical Systems Theory, Vol. 3, pp. 67-75, 1969.
  18. "Lectures on Controllability and Observability", Seminar on Controllability and Observability sponsored by Centro Internazionale Matematico Estivo, (CIME) pp. 205-287, Edizioni Cremonese, Rome, 1969.
  19. "On Uniform and Nonuniform Finite Time Stability", IEEE Trans. Auto. Control, Vol. AC-14, No. 3, pp. 313-314, 1969.
  20. "New Results in the Theory of Controllability for Various System Models", Proceedings Joint Automatic Control Conference, pp. 453-456, 1969.
  21. "An Algebraic Criterion for Controllability for Linear Systems with Time Delay", IEEE Trans. Auto. Control, Vol. AC-15, pp. 453-456.
  22. "Controllability for Various Linear and Nonlinear System Models", in Seminar on Differential Equations and Dynamical Systems, Springer Verlag, p 250-261, 1970.

23. "Finite-Time Stability of Linear and Nonlinear Systems-- a Rapprochement", Proceedings, Mexico 1971 International Conference on Systems, Networks, and Computers, Vol. 1, pp. 147-149.
24. "Recent Results in the Theory of Controllability for Functional Differential Systems", Proc. 5th Annual Princeton Conference on Information Sciences and Systems, pp. 224-228, 1971.
25. "Stability of Linear Discrete Systems in a Finite Time Interval", (with J.S. Lee), (in Russian translation) Avtomatika i Telemekhanika, Vol. 32, No. 12, pp. 63-68, 1971. (in English retranslation), Automation and Remote Control, pp. 1915-1919, May 1972.
26. "Finite-Time Stability of Linear Differential Equations", (with J.S. Lee), in Ordinary Differential Equations, (L. Weiss, Editor), Academic Press, pp. 569-580, 1972.
27. "Controllability, Realization, and Stability of Discrete Time Systems", SIAM J. Control, Vol. 10, pp. 230-251, 1972.
28. "Stability of Nonlinear Discrete-Time Systems", (with L. Lam), Int'l J. Control, Vol. 17, No. 3, pp. 465-470, 1973.
29. "Final Stability with respect to Time-Varying Sets", (with L. Lam), J. Franklin Institute, Vol. 298, pp. 415-421, 1974.
30. "On Controlling Shocks in Quasi-linear Partial Differential Equations", (with R. Printiss), Proceedings, USC Int'l Conf. on Differential Equations, 1975, (Abstract Only)
31. "EEs in Congress", IEEE Spectrum, Vol. 14, No. 2, pp. 19-20, 1977.
32. "Nonproliferation Strategy for the 70's", (with 15 others), Report of 18th Strategy for Peace Conference, Stanley Foundation, Muscatine, Iowa, 1977
33. "Nuclear Safeguards: A Congressional Perspective", Bulletin of the Atomic Scientists, Vol. 34, pp. 27-33, 1978.

34. "Reprocessing and Enrichment: Are There Alternatives Which Are More Proliferation Proof?", in Reconciling Energy Needs and Nonproliferation, Karl Kaiser (ed.), Verlag, pp. 96-98, 1980.
35. Nuclear Energy and Nuclear Proliferation: Japanese and American Views (Book Review and Essay), Series in Contemporary Asian Studies, University of Maryland, pp. 43-48, 1983.
36. "Atoms for Peace and Nuclear Proliferation", in Atoms for Peace: An Analysis After Thirty Years, Joseph F. Pilat et al. (eds.), Westview Press, pp.131-141, 1985.
37. "Acid Rain: Present and Proposed Laws", in Acid Rain: How Serious and What to Do, D. Hafemeister (ed.), American Association of Physics Teachers, 1986.
38. "A Commentary on Blocking the Spread of Nuclear Weapons", Bulletin of the Atomic Scientists, June/July 1986, pp. 27-28.
39. "The Concept of Timely Warning in the Nuclear Nonproliferation Act of 1978," Congressional Record, 21 March 1988, S2639-S2646; also Congressional Record, 5 April 1995, S5198-S5202; Also available in Senate Foreign Relations Committee, Testimony of Sen John Glenn, appendix, 15 December 1987, and in Nuclear Nonproliferation Factbook (Washington, D.C.: Library of Congress, Congressional Research Service, December 1994), 155-78.
40. "Tighten up on Nuclear Cheaters", Bulletin of the Atomic Scientists, Vol. 47, No. 4, pp. 11-12, 1991.
41. "The Nuclear Nonproliferation Treaty: Strengths and Gaps", in Fighting Proliferation, (H. Sokolski, Ed.), Air University Press, Maxwell Air Force Base, Alabama, pp.31-55, 1996.
42. "Sanctions as a Nonproliferation Tool", Proceedings of the Carnegie Conference on Nuclear Non-Proliferation, Washington, DC, 1997.

43. "The Current Debate Over Sanctions and Nonproliferation", Proceedings of the 7<sup>th</sup> Carnegie Nonproliferation Conference, Washington, DC, 1999.
44. "The Nexus of Counterterrorism and Nonproliferation Policy", The Monitor, Center for International Trade and Security, University of Georgia, Vol.8, No.1, pp.3-7, 2002.
45. "Nuclear Weapon States and the Grand Bargain", Arms Control Today, pp.21-25, Dec. 2003.
46. "Pakistan: It's Déjà Vu All Over Again", Bulletin of the Atomic Scientists, May/June 2004.
47. "Atoms for Peace", Bulletin of the Atomic Scientists, Vol. 59, No. 6, November, 2004.
48. "Turning a Blind Eye Again? The Khan Network's History and Lessons for U.S. Policy", Arms Control Today, March 2005.
49. "A High-Stakes Nuclear Gamble", Op-Ed, LA Times, December 30, 2005.
50. "The U.S.-India Nuclear Agreement", Testimony before the House International Relations Committee, May 11, 2006.
51. "The A.Q. Khan Network: Case Closed?", Testimony before the House Subcommittee on International Terrorism and Nonproliferation, May 25, 2006. Hearing Record, pp. 9-17.
52. "Power Points: The U.S.-India Nuclear Agreement is the Wrong Deal with the Wrong Energy Source", Bulletin of the Atomic Scientists, Vol. 62, No.3, May/June 2006, pp. 21, 63.
53. "Think Again: U.S.-India Nuclear Deal", (with T. Graham and L. Tomero), Foreign Policy, June 24, 2006.
54. "Congress Must Stop an Attack on Iran", (with L. Diamond), Op-Ed, LA Times, February 5, 2007.

55. "Criminal Pursuits", Bulletin of the Atomic Scientists, March/April 2007, p.7.
56. "U.S.-India Nuclear Cooperation: Better Later than Sooner", The Nonproliferation Review, Vol. 14, No. 3, pp. 429-457, November, 2007.
57. "U.S.-India Nuclear Agreement is Reckless Foreign Policy" Stanford Report, October 22, 2008, p.14.
58. "Reliable Energy Supply and Nonproliferation", Nonproliferation Review, Vol. 16, No. 2, pp.269-284, July, 2009.
59. "Israel's Future and Iran's Nuclear Program", Middle East Policy, Vol. XVI, No.3, pp. 79-88, Fall, 2009.
60. "India and the NPT", Strategic Analysis, Vol. 34, No. 2, pp. 255-271, 2010.
61. "Spreading the Bomb for Profit", Book Review, Arms Control Today, Vol. 40, No. 5, pp. 42-47, June 2010.
62. "Re: Some Nukes", a letter in response to Hendrik Hertzberg's article of March 22, 2010, The New Yorker, April 5, 2010
63. "Israel's 1979 Nuclear Test and the U.S. Cover-Up", Middle East Policy, Vol. XVIII, No.4, pp. 83-95, Winter 2011.

Book

Editor of Ordinary Differential Equations: The NRL-MRC Conference, Academic Press, 1972.