CURRICULUM VITAE

Edward L. Garwin

Education:	BS, Physics, Case Institute of Technology, 1954 MS, Physics, University of Chicago, 1955 PhD, Physics, University of Chicago, 1958
Honors: and Awards:	SLAC Achievement Award, May 1988 National Science Foundation Fellow, 1954-1957 Dayton C. Miller Prize in Physics, 1954 Thompson Products Scholarship, 1952--1954 Upperclass Scholarship, 1952--3
Employment:	
1975 - Present	Professor (Applied Research), Leader of Physical Electronics Group, Stanford Linear Accelerator Center
Jan - Jun 1997 and 1985-1986	Visiting Professor, ETH, Zurich, Switzerland
November 1962 - 1975	Permanent Staff Member, Leader of Physical Electronics Group, Stanford Linear Accelerator Center
August 1979 - July 1981	Consultant, Pacific Sierra Research Corp., Santa Monica, California
February 1975 - March 1976	Consultant, Searle Cardio-Pulmonary Systems, Inc., Emeryville, California
March 1971 - March 1972	Coinvestigator on National Institutes of Health Contract NIH-71-2043
April 1969 - March 1975	Consultant, RAND Corporation, Santa Monica, California
September 1960 - November 1962	Senior Scientist, Clauser/General Technology Corporation, Torrance, California
October 1959 - September 1960	Assistant Professor, University of Illinois, Urbana, Illinois
June 1959 - September 1960	Consultant, Space Technology Laboratories, Redondo Beach, California
July 1958 - June 1959	Research Associate, University of Chicago, Chicago, Illinois
September 1957 - July 1958	Research Assistant, University of Chicago, Chicago, Illinois
Summer 1954	Temporary Staff, General Electric Co., Nela Park, Cleveland, Ohio
Summer 1953	Temporary Staff, Thompson Products Co., Cleveland, Ohio
Summer 1952	Temporary Staff, Thompson Products Co., Cleveland, Ohio

Edward L. Garwin has had extensive experience in physics instrumentation and measurement techniques.

At the University of Chicago, he designed accelerator vacuum systems, high-speed circuitry, and a liquid hydrogen target system, while carrying out research in nuclear physics and meson physics.

At the University of Illinois, he designed a Mossbauer scattering system and its associated electronics for his research program.

At Space Technology Laboratories, he was a consultant on magneto-hydrodynamics, theoretical and experimental physics, and vacuum techniques.

At Clauser Technology Corporation, he conducted research on cryovapor pumping, ultra-high vacuum techniques, and space simulation systems.

In collaboration with members of the Stanford School of Medicine, he has developed a nanosecond light source, and valuable techniques used in nanosecond fluorimetry (see publication number 24 in attached list).

Working with a colleague at the Stanford Linear Accelerator Center, he was coinvestigator on a contract with the National Institutes of Health for the development and fabrication of miniature pressure transducers and associated electronic readouts for use in in vivo human heart catheterization.

At the Stanford Linear Accelerator Center, he carried out extensive research in ultra-high vacuum techniques, which led to the first explanation of pressure rise in electron storage rings due to production by synchrotron radiation of photoelectrons which subsequently desorbed bound hydrocarbons and gas from the vacuum chamber walls. His further research led to methods of pumping and chamber treatment which solved this problem and made feasible these and higher energy storage rings. Other areas of research have been vacuum deposition of thin films, self-supporting anodized films, and low-level electronic measurements in support of his program of investigating secondary emission of alkali-halides. He has actively engaged in research in superconductivity, optical wavelength shifters for phototubes, and atomic beam polarized electron sources, for which he developed a demountable, vortex-stabilized, high-power ultra-violet flash lamp which operates with extreme stability for lifetimes in excess of 2×10^7 pulses before requiring adjustment. He has developed an optically pumped, semiconductor polarized electron source capable of producing 100 mA peak currents of 50% polarized electrons, and is currently involved in research on increased polarization of electron sources, low temperature cleaning techniques for negative electron affinity semiconductor surfaces, and surface physics applied to radio-frequency superconductivity and high power klystrons, particularly to develop means of minimizing secondary emission coefficient, multipactor, and surface degradation attendant to atmospheric exposure, with characterization by ellipsometry of surfaces both in ultrahigh vacuum and during atmospheric exposure.

In February 1991, he and his colleagues demonstrated the first significant enhancement of electron-spin polarization above 50% from a negative electron affinity cathode. At that time, polarizations of 70% were obtained from a strained-layer sample. In January, 1992, by varying strain and layer thickness, polarizations near 90% were achieved. This process of optimization is continuing with the aim of maximizing both polarization and quantum efficiency, consistent with obtaining long-lifetime cathodes needed for application at SLAC and other laboratories.

He is a member of the American Physical Society, American Vacuum Society, and of Sigma Xi. He has been an active contributor to his fields of research, where he has published more than 80 papers on instrumentation, nuclear physics, meson physics, surface physics, and secondary emission. He has been granted six patents, and has written numerous internal Technical Notes.

Stanford University Service	Member, Committee on Research, 1982 - 1985
	Executive Officer for SLAC Applied Research Faculty, 1982 - 1985
	Supervised PhD thesis research for 3 students
	Supervised 4 Research Associates
	Hosted 4 visiting scientists in the Physical Electronics Group
	Chaired numerous PhD oral examinations
Community Service	Peer counselor for KARA, offering support to individuals (and their families) who are grieving, dying, or confronted with life-threatening illness

Edward L. Garwin

Publications

1. Linear gate of 200 millimicrosecond duration, Rev. Sci. Instr., 28, 116 (1957) (with one co-author).
2. Simple zero field indicator for betatrons, Rev. Sci. Instr., 30, 203 (1959) (with two co-authors).
3. Charge independence in the reactions $p + d \rightarrow \pi^0 + He^3$ $p + d \rightarrow \pi^+ H^3$ at 450 MeV, PRL 2, 269 (1959) (with two co-authors).
4. Gamma-ray excitation of the 15.1 MeV level in C^{12}, PR 114, 143 (1959).
5. Linear gate of 20-mμ duration, Rev. Sci. Instr. 30, 373 (1959).
6. Photonuclear cross sections for A^{40}, PR 114, 1139 (1959) (with one co-author).
7. Nuclear photon absorption in carbon and oxygen, PR 114, 1324 (1959) (with one co-author).
8. Photonuclear reaction energies, PR 115, 420 (1959) (with one co-author).
9. Charge exchange scattering of 128-MeV negative pions on hydrogen, PR 115, 1295 (1959) (with three co-authors).
10. A high energy gamma ray spectrometer, Nucl. Instr. Methods 5, 247 (1959) (with two co-authors).
11. Gamma rays from the nuclear photoeffect in carbon, oxygen and copper, PR 116, 120 (1959) (with one co-author).
12. Betatron energy calibration by magnetic field measurement, Rev. Sci. Instr. 31, 155 (1960) (with five co-authors).
13. Search for the anisotropy of inertia using the Mossbauer effect in Fe^{57}, PRL 4, 399 (1960) (with five co-authors).
14. Instrumentation for medium energy gamma-ray scattering measurements, Rev. Sci. Instr. 31, 853 (1960) (with one co-author).
15. Charge exchange scattering of negative pions at 61 MeV and 95 MeV, Phys. Rev. 119, 1096 (1960) (with two co-authors).
16. Cryogenic pumping and space simulation, Chapter 10 of "Cryogenic Technology", edited by R. W. Vance, John Wiley and Sons (1963).
17. Cryogenic pumping and space simulation, Advances in Cryogenic Engineering, Vol. 8, Plenum Press (1963).
18. Some investigations of cryotrapping. Trans.9th Annual Vac. Symp., Pergamon Press, p. 197 (1963). (with two co-authors).

SLAC-PUBS

SLAC-PUB-0076

19. Accelerator Vacuum problems: inline oil trapping between the Stanford Linear Accelerator and the beam switchyard. Trans. Nucl. Sci. NS-12, 740 (1965). (with one co- author).

SLAC-PUB-0095

20. Water-cooled beam dumps and collimators for the Stanford Linear Accelerator. Trans. Nucl. Sci. NS-12, 867 (1965). (with two co-authors).

SLAC-PUB-0154

21. Attenuation length for secondary electrons in bulk-density KC1 and CsI. J. Appl. Phys. 37, 2916 (1966). (with one co-author).

SLAC-PUB-0156

22. Response of low-density KC1 foils to multi-MeV electrons. Advances in Electronics and Electron Physics 22, 635, Academic Press (1966). (with one co-author).

SLAC-PUB-0166

23. CsI as a high-gain secondary emission material. J. Appl. Phys. 37, 3321 (1966). (with one co-author).

SLAC-PUB-0244

24. Nanosecond Fluorimeter. Rev. Sci. Instr. 38, 488 (1967). (with three co-authors).

SLAC-PUB-0392

25. Electron-induced desorption of gasses from aluminum. Proc. 4th International Vacuum Congress, Manchester, England, Inst. of Physics and Physical Society, London, p. 131-6, (1968). (with three co-authors).

SLAC-PUB-0405

26. Method of stabilizing high current secondary emission monitors. Symposium on Beam Intensity Measurement, Daresbury (1968). (with one co-author).

SLAC-PUB-0495

27. Detailed study of the electron-phonon interaction in alkali halides, Part I, The Transport of Electrons With Energies Between .25 and 7.5eV, J. Appl. Phys. 40, 2766 (1969). (with one co-author).

SLAC-PUB-0516

28. Detailed study of the electron-phonon interaction in alkali halides. Part II, Transmission secondary emission from alkali halides. J. Appl. Phys. 40, 2776, (1969). (with one co-author).

SLAC-PUB-0562

29. RF superconducting materials research at SLAC. Presented at National Particle Accelerator Conf., Washington, D.C. (1969). (with one co-author).

SLAC-PUB-0587

30. Statistics of transmission secondary emission from thin films of alkali-halides. J. Appl. Phys. 40, 3936 (1969). (with one co-author).

SLAC-PUB-0619

31. Theoretical secondary emission yield of cesiated gallium arsenide. June 1969. Unpublished. (with one co-author).

SLAC-PUB-0623

32. Mechanism of secondary emission and single particle statistics from low-density films of alkali-halides. J. Appl. Phys. 41, 1489 (1970). (with one co-author).

SLAC-PUB-0857

33. Optical transmittance of common Cerenkov counter gases. Nucl. Instr. and Methods 93, 593-594 (1971). (with one co-author).

SLAC-PUB-0926

34. Thin dielectric films in superconducting cavities. Lettre al Nuovo Cimento 2, 450 (August 1971). (with one co-author).

SLAC-PUB-0991

35. Resistivity ratio of niobium superconducting cavities. Appl. Phys. Letters 20, No. 4, 154 (February 15, 1972). (with one co-author).

SLAC-PUB-1083

36. Fluxoid quantization and phase transition in hollow superconductors carrying transport current. Lettre al Nuovo Cimento 6, No. 9, 329 (March 2, 1973). (with one co-author).

SLAC-PUB-1133

37. Method for elimination of quartz-face phototubes in Cerenkov counters by use of wavelength-shifter. Nucl. Instr. and Methods 107, 365 (1973). (with two co-authors).

SLAC-PUB-1169

38. Permanent multipole magnetic fields stored in superconductors. Appl. Phys. Letters 22, No. 11, 599 (June 1, 1973). (with two co-authors).

SLAC-PUB-1214

39. An investigation of the very incomplete Meissner effect. Lettre al Nuovo Cimento 7, No. 1, 1 (May 1973). (with two co-authors).

SLAC-PUB-1277

40. Optical absorption spectra of some potentially interesting gases for Cerenkov counters. Nucl. Instr. and Methods 114, 413 (1974) (with one co-author).

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41. Organic wavelength shifters for improved vacuum ultraviolet detectors. December 1973. Unpublished. (with one co-author).

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42. A pulsed source of spin-polarized electrons by photoemission from EuO. Nucl. Instr. and Methods 120, 483 (1974). (with four co-authors).

SLAC-PUB-1557

43. Superconductivity, Cryogenics and Vacuum Technology for Linear Accelerators. Proc. 6th Intl. Vacuum Congress, 1974. Japan. Journal Appl. Phys., Suppl. 2, Pt. 1, (1974).

SLAC-PUB-1576

44. Polarized Photoelectrons from Optically Magnetized Semiconductors. Helv. Phys. Acta 47, 393 (1974). (with two co-authors).

SLAC-PUB-1667

45. Electrolytic conductivity detector for trace analysis of H_2, HD, D_2 and Neon in Hydrogen and Deuterium. J. Chromatog. Sci. 14, 541 (1976). (with one co-author).

SLAC-PUB-1810

46. Field replication and flux shielding in annular superconductors. IEEE Trans. Magn. MAG-13, No. 1, 205.

SLAC-PUB-1933

47. Reactive sputter-thinning of large diamonds while preserving excellent crystalline perfection. Proceedings of 7th Int. Vacuum. Congress and 3rd Int. Conf. on Solid Surfaces, Vienna, Austria, September 12-16, 1977, p. 1517.

SLAC-PUB-1934

48. A LEED probe for surface spin systems. Proc. 7th Int. Vacuum Congress and 3rd Int. Conf. on Solid Surfaces, Vienna, Austria, September 12-16, 1977, p. 2399. (with one co-author).

SLAC-PUB-2109

49. A High Intensity Polarized Electron Source for the Stanford Linear Accelerator. Presented at 1976 Int'l Symposium on GaAs and Related Compounds, Edinburgh, Scotland, 19-22 September 1976 (with three co-authors).

SLAC-PUB-2148

50. Parity non-conservation in inelastic electron scattering. Phys. Lett. 77B, 347 (1978). (with nineteen co-authors).

SLAC-PUB-2319

51. Further measurements of parity non-conservation in inelastic electron scattering. Phys. Lett. 84B, 524 (1979). (with twenty co-authors).

SLAC-PUB-2374

52. Spin polarization effect in the theory of magnetic scattering from antiferromagnetic NiO(111) surfaces by polarized low energy electron diffraction. Solid State Communication 32, 993 (1979). (with two co-authors).

53. PLEED magnetic surface structure studies at SLAC. Proc. of 4th Intl. Conf. on Solid Surfaces and 3rd European Conf. on Surface Science, Cannes, France. (Suppl. Le Vide les Couches Minces, No. 201) Vol. II, p. 1044, Sept., 1980. (with two co-authors).

SLAC-PUB-2533

54. Surface studies of materials for superconducting cavities. Proc. of 4th Int. Conf. on Solid Surfaces and 3rd European Conf. on Surface Science, Cannes, France. (Suppl. Le Vide les Couches Minces, No. 201). Vol. II, p. 1092, Sept., 1980. (with three co-authors).

SLAC-PUB-2528

55. Materials and lubrication for gear and bearing surfaces in UHV. Proc. of the 8th Int. Vacuum Congress, Cannes, France (Suppl. Le Vide Les Couches Minces, No. 201) Vol. II, p. 437, Sept., 1980. (with two co-authors). Vakuum-Technik, 31. Jahrgang, Heft 3, p. 67. (with two co-authors).

SLAC-PUB-2715

56. Oxide effects on photoemission from high current GaAs photocathodes. Vacuum, 31, 553 (1981). (with three co-authors).

SLAC-PUB-2716

57. Electron-activated carbon diffusion in niobium compounds for RF superconductivity. Vacuum, 31, 597 (1981). (with three co-authors).

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58. Applications of vacuum technology to novel accelerator problems. Invited paper presented at 1983 Particle Accelerator Conference, Santa Fe, New Mexico, March 21-23, 1983, and published in IEEE Trans. Nucl. Sci., NS-30, 2758 (1983).

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59. RF Superconducting Properties of Thin Films on Niobium. IEEE Trans. Nucl. Sci., NS-30, 3363 (1983). (with six co-authors).

SLAC-PUB-2319

51. Further measurements of parity non-conservation in inelastic electron scattering. Phys. Lett. 84B, 524 (1979). (with twenty co-authors).

SLAC-PUB-2374

52. Spin polarization effect in the theory of magnetic scattering from antiferromagnetic NiO(111) surfaces by polarized low energy electron diffraction. Solid State Communication 32, 993 (1979). (with two co-authors).

53. PLEED magnetic surface structure studies at SLAC. Proc. of 4th Intl. Conf. on Solid Surfaces and 3rd European Conf. on Surface Science, Cannes, France. (Suppl. Le Vide les Couches Minces, No. 201) Vol. II, p. 1044, Sept., 1980. (with two co-authors).

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SLAC-PUB-2528

55. Materials and lubrication for gear and bearing surfaces in UHV. Proc. of the 8th Int. Vacuum Congress, Cannes, France (Suppl. Le Vide Les Couches Minces, No. 201) Vol. II, p. 437, Sept., 1980. (with two co-authors). Vakuum-Technik, 31. Jahrgang, Heft 3, p. 67. (with two co-authors).

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SLAC-PUB-3075

59. RF Superconducting Properties of Thin Films on Niobium. IEEE Trans. Nucl. Sci., NS-30, 3363 (1983). (with six co-authors).

SLAC-PUB-3213

60. Surface properties of metal-nitride and metal carbide films deposited on Nb for RF superconductivity. Presented at IX International Vacuum Congress, V International Conference on Solid Surfaces (IX IVC - V ISCC), Madrid, Spain, Sept. 26-Oct. 1, 1983. (with three co-authors).

SLAC-PUB-3378

61. Surface studies of Nb, its compounds and coatings. Invited paper, proceedings of the Second Workshop on RF Superconductivity, Geneva, Switzerland, 23-27 July, 1984. CERN, Nov. 1984, Editor, H. Lengeler, pgs. 455-504. (with one co-author).

SLAC-PUB-3470

62. Secondary Electron Yield and AES Measurements on Oxides, Carbide and Nitride of Niobium. J. Appl. Phys., 59, 3245 (May 1, 1986). (with three co-authors).

SLAC-PUB-3473

63. New radiofrequency technique for deposition of hard carbon films. Journal Vac. Sci. and Technology, 3, 610 (1985). (with three co-authors).

SLAC-PUB-3499

64. Test of the electronic structure of Fe(100) by absorbed current spectroscopy. Presented at the 30th Annual Conference on Magnetism and Magnetic Materials, San Diego, CA, Nov. 27-30, 1984. Published in J. Appl. Phys., 57, 1, 3021, April 15 1985, under title ``The Bandstructure of Fe(100) 0-70eV Above the Vacuum Energy.'' (with five co-authors).

SLAC-PUB-3512(Rev.)

65. Valence band XPS study of Fe at finite temperatures (abstract), J. Appl. Phys., 57, 1, 3043 (April 15, 1985). (with four co-authors)

66. Valence band XPS-study of Fe(100) at finite temperatures. Presented at the 30th Annual Conference on Magnetism and Magnetic Materials, San Diego, CA Nov. 27-30, 1984. (with four co-authors).

SLAC-PUB-3576

67. The ferromagnetic to paramagnetic phase transition of Fe studied by x-ray photoelectron spectroscopy. Solid State Communications, 56, 425-429, (1985).

SLAC-PUB-3594

68. Energy-dependence of inner potential in Fe from low-energy electron absorption (Target Current). Solid State Communications, 55, 6, 543-547, (1985). (with six co-authors).

SLAC-PUB-3650

69. An experimental program to build a multimegawatt lasertron for super linear colliders. Presented at the 1985 Particle Accelerator Conference, Vancouver, B.C., May 13 - 16, 1985. Published in IEEE Trans. Nucl. Sci. NS-32, 2906 (1985). (with five co-authors).

SLAC-PUB-3760

70. Properties of TiN Anti-Multipactor Coatings for Klystron Windows. J. Vac. Sci. Technol. A4, 2356 (Sep/Oct 1986). (with four co-authors).

SLAC-PUB-3907

71 TiN High Temperature Diffusion Barrier for copper-gasketed stainless-steel flanges. J. Vac. Sci. Technol. A4, 2537 (Nov/Dec 1986). (with three co-authors).

SLAC-PUB-4078

72. Ultra High-Vacuum Linear-Rotary Transfer Mechanism Utilizing a Bakable Self Lubricating Bearing. Rev. Sci. Instr. 58, 479 (March 1987.) (with three co-authors).

SLAC-PUB-4192

73. Diamondlike carbon high--temperature diffusion barrier for copper--gasketed stainless-steel flanges. J. Vac. Sci. Technol. A5 5, (Sep/Oct 1987.) (with two co--authors).

SLAC-PUB-4196

74. Surface Properties of Cr_2O_3. J. Appl. Phy. 62, 1400 (15 August 1987). (with four co-authors).

SLAC-PUB-4309

75. Diamond-like Antireflective Coatings For Far Infrared Photoconductors. Presented at the E-MRS Meeting, France, June 1-5, 1987. (with four authors).

SLAC-PUB-4698

76. In Situ Growth of Superconducting YBaCuO Using Reactive Electron-Beam Coevaporation. Presented at the IEEE 1988 Applied Super Conductivity Conference, San Francisco, CA, Aug. 21-25, 1988. (with eleven co-authors).

SLAC-PUB-4779

77. Enhanced electron spin polarization in photoemission from thin GaAs. Appl. Phys. Lett. 55, (16), 1686, 16 October 1989. (with five co-authors).

SLAC-PUB-4817

78. Aerosol Generation by Spark Discharge. J. Aerosol Science 19 5, 639 (1988). (with two co-authors).

SLAC-PUB-4945

79. Oxide Overlayers and the Superconducting RF Properties of Yttrium-Processed High Purity Nb. Nuclear Instruments and Methods, A297, 321 (1990).

SLAC-PUB-5015

80. Atomic Oxygen Detection by Silver-Coated Quartz Deposition Monitor. Rev. Sci. Instrum. 61 (6), 1747, (June 1990). (with two co-authors).

SLAC-PUB-5367

81. Electron Spin Polarization in Photoemission from Thin AL-XGA-(1-X)AS. J. Appl. Phys. 73. 5189-5192 (1993), (with five co-authors)

SLAC-PUB-5420

82. Observation of Strain Enhanced Electron Spin Polarization in Photoemission from InGaAs. Phys. Rev. Lett. 66, 2376 (1991). (with five co-authors).

SLAC-PUB-5454

83. SLC Polarized Beam Source Ultra-High Vacuum Design. Presented at the IEEE Particle Accelerator Conference, San Francisco, CA, May 6 - 9, 1991. (with eight co-authors).

SLAC-PUB-5546

84. Strain Enhanced Electron Spin Polarization Observed in Photoemission From InGaAs. Contributed to the IEEE Particle Accelerator Conference, San Francisco, CA, May 6 - 9, 1991. (with five co-authors).

SLAC-PUB-5731

85. Electron Spin Polarization in Photoemission from Strained GaAs grown on $GaAs_{1-x}P_x$. Phys. Rev. B 46, 4261 (1992). (with three co-authors).

SLAC-PUB-5751

86. Observation of Electron Polarization Above 80% in Photoemission From Strained III-V Compounds. Communications of the Symposium on Surface Science 3S*92, LaPlagne, Savoie, France, March 15 - 21, 1992, pp 238--245, (with three co-authors).

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87. First Measurement of the left-right cross-section asymmetry in Z Boson Production at E_{CM}=91.55 GEV. Contributed to the 26th Int'l Conference on High Energy Physics, Dallas, TX, (1992). (SLD Collaboration). Published in Dallas HEP 1992: 708-715

SLAC-PUB-5903

88. Measurements of Hadronics Decays of Z^0 Bosons. Contributed to the 26th Int'l Conference on High Energy Physics, Dallas TX (1992), (SLD Collaboration)

SLAC-PUB-5904

89. A study of jet rates and measurement of Alpha-s at the Z^0 resonance. Contributed to the 26th Int'l. Conference on High Energy Physics, Dallas, TX (1992), (SLD Collaboration)

SLAC-PUB-5905

90. A study of energy-energy correlations and measurement of alpha-s at the Z^0 resonance. Contributed to the 26th Int'l Conference on High Energy Physics, Dallas, TX (1992), (SLD Collaboration)

SLAC-PUB-5973

91. QCD studies of hadronic decays of Z^0 Bosons by SLD. Presented at the 26th Int'l Conference on High Energy Physics, Dallas, TX (1992), (SLD Collaboration)

SLAC-PUB-6004

92. Measurements of spin sensitive quantities in hadronic decays of Z^0 Bosons produced in E^+ E^- annihilations. Presented at the 10th Int'l. Symp. on High Energy Spin Physics, Nagoya, Japan, (Nov. 1992), (SLD Collaboration)

SLAC-PUB-6016

93. A Monte Carlo Study of $B^0 - \bar{B}^0$ Mixing in Decays of Z^0s Produced with a Polarized Electron Beam. Presented at the 10th Int'l Symp. on High Energy Spin Physics, Nagoya, Japan, (Nov. 1992), (SLD Collaboration).

SLAC-PUB-6026

94. The Compton Polarimeter for SLC. Presented at the 10th Int'l. Symp. on High Energy Spin Physics, Nagoya, Japan, (Nov. 1992), (SLD Collaboration).

SLAC-PUB-6027

95. First Results from SLD with Polarized Electron Beam at SLC. Presented at the Twentieth Annual SLAC Summer Institute on Particle Physics: The Third Family and the Physics of Flavor. Stanford, CA., (July 1992), (SLD Collaboration). SLAC Summer Inst. 1992:341-358

SLAC-PUB-6030

96. First measurement of the left-right cross section asymmetry in Z Boson production by E^+ E^- Collisions. Phys. Rev. Lett. 70, 2515-2520, (1993), (SLD Collaboration)

SLAC-PUB-6033

97 High Polarization Photocathode R&D at SLAC. Presented at the 10th Int'l Symposium on High Energy Spin Physics, Nagoya, Japan, (Nov. 1992), (SLD Collaboration).

SLAC-PUB-6034

98. First Measurement of the Left-Right Z Cross Section Asymmetry in Polarized e^+e^- Collisions at the SLC. Invited talk presented at 10th Int'l Symp. on High Energy Spin Physics, Nagoya, Japan, (Nov. 1992), (SLD Collaboration).

SLAC-PUB-6169

99. First Measurement of the Left-Right Asymmetry in Z Boson Production. Mod.Phys.Lett.A8:2237-2248 (1993). (SLD Collaboration)

SLAC-PUB-6456

100. Precise Measurement of the Left-Right Cross Section Asymmetry in Z Boson Production e^+e^- Collisions. Phys. Rev. Lett. 73, No. 1, 25-29, (1994), (SLD Collaboration)

SLAC-PUB-6493

101. Precise Determination of the Weak Mixing Angle from a Measurement of A_{LR} in $e^+e^- \rightarrow Z^0$. Presented at the XXIXth Rencontres de Moriond: Electroweak Interactions and Unified Theories, Meribel, France, March 12-19, 1994 (SLD Collaboration)

SLAC-PUB-6513

102. Measuring A_b with Polarized Beams at SLC. Presented at the XXIXth Rencontres de Moriond: Electroweak Interactions and Unified Theories, Meribel, France, March 12-19, 1994, (SLD Collaboration)

SLAC-PUB-6773

103. Magnetism with Picosecond Field Pulse. J.Magn.Magn.Mater.151:L8-L12 (1995). (with seven co-authors)

SLAC-PUB-6836

104. Anisotropies in Strain and Quantum Efficiency of Strained GaAs Grown on GaAsP. Phys.Lett.A212:231-236 (1996). (with five co-authors)

SLAC-PUB-7046

105. An Improved Search for Elementary Particles with Fractional Electric Charge. Phys.Rev.D53:6017-6032 (1996). (with eight co-authors)

SLAC-PUB-7346

106. A Polarization Study of Strained GaAs Photocathode Structures. Talk given at Workshop on Polarized Electron Sources and Low-energy Polarimeters (Pre-symposium for SPIN 96), Amsterdam, Netherlands, 6-7, Sep 1996. SPIN 96:706-708 (QCD161:S921:1996) (1996). (with five co-authors)

SLAC-PUB-7650

107. Photocathode Research at SLAC. Talk given at 7th International Workshop on Polarized Gas Targets and Polarized Beams, Urbana, IL, 18-22 Aug 1997. (with six co-authors)

108. A Novel Search for Free Quarks Produced in Heavy Ion Interactions: Letter of Intent to the SPSC. CERN-97-25, Oct 1997. 9pp. Fermilab Library Only. (with four co-authors)

SLAC-PUB-7656

109. Measurement of the Deformation Potentials for GaAs Using Polarized Photoluminescence. Phys.Lett.A239:277-284 (1998). (with three co-authors)

SLAC-PUB-7871

110. Magnetization Reversal in Ultra Short Magnetic Field Pulses. Phys.Rev.Lett. 81:3251-3254, (1998). (with six co-authors)

SLAC-PUB-7960

111. Recent Developments on Strained Photocathode Research, Sep 1998 (with eight co-authors)

Edward L. Garwin

Patents

3,222,449 - "Magnetic Shield Arrangements"

3,315,732 - "High Energy Particle Beam Dump and Heat Sink"

3,479,555 - "Coaxial Light Source with Series Impedance with the Envelope"

3,527,873 - "Composite Superconducting Cable Having a Porous Matrix"

3,588,593 - "Method of Operating An Ion-Getter Vacuum Pump with Gun and Grid Structure Arranged for Optimum Ionization and Sublimation"

4,719,436 - "Stabilized Chromium Oxide Film"

Edward L. Garwin

Technical Notes

63-24 Beam Stoppers - I, Unfeasibility of Water-Cooled Foil Stacks at Shower Maximum. April 1963.

63-68 Preliminary Heat Transfer Design of a Beam Scraper. August 1963. (with one co-author).

64-70 BSY Beam Tube Oil Trapping Tests. August 1964. (with one co-author).

62-2 Evaluation of Two Types of Commercially Available Sorption Pumps. January 1965.

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