





大阪市立大学工学部（北校舎）

昭和 33・11・12 撮影

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大阪市立大学理工学部（北校舎）昭和39・11・12撮影

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List of Publications

1948

1. On the Relativistic Formulation of the Perturbation Theory, *Prog. Theor. Phys.* **3**, 444.

1949

2. The Level Shift and the Anomalous Magnetic Moment of the Electron, *Prog. Theor. Phys.* **4**, 82.
3. Second Configuration Space and Third Quantization, *Prog. Theor. Phys.* **4**, 96.
4. Effect of the C-Meson Field on the Anomalous Magnetic Moment of the Electron (with *Z. Koba and T. Tati*), *Prog. Theor. Phys.* **4**, 99.
5. On the Method of Third Quantization, I and II, *Prog. Theor. Phys.* **4**, 331; 339.

1950

6. A Note on the Eigenvalue Problem in Crystal Statistics, *Prog. Theor. Phys.* **5**, 1.
7. The Use of the Proper Time in Quantum Electrodynamics I, *Prog. Theor. Phys.* **5**, 82.
8. On the Electromagnetic Properties of Mesons (with *T. Kinoshita*), *Prog. Theor. Phys.* **5**, 307.
9. Derivation of the Interaction Potential from Field Theory, *Prog. Theor. Phys.* **5**, 321.
10. Force Potentials in Quantum Field Theory, *Prog. Theor. Phys.* **5**, 614.

11. On the Interaction of Mesons with the Electromagnetic Field II (with *T. Kinoshita*), *Prog. Theor. Phys.* **5**, 749.

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12. On the Nature of V-Particles I and II (with *K. Nishijima and Y. Yamaguchi*), *Prog. Theor. Phys.* **6**, 615; 619.
13. Meson–Nucleon Scattering (with *Y. Yamaguchi*), *Prog. Theor. Phys.* **6**, 1000.

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14. On Lagrangian and Hamiltonian Formalism, *Prog. Theor. Phys.* **7**, 131.
15. An Empirical Mass Spectrum of Elementary Particles, *Prog. Theor. Phys.* **7**, 595.

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16. The Collective Description of Many-Particle System (A Generalized Theory of Hartree Fields) (with *T. Kinoshita*), *Phys. Rev.* **94**, 598.

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18. Structure of Green's Function in Quantum Field Theory I, *Phys. Rev.* **100**, 394.

1956

19. Structure of Green's Function in Quantum Field Theory II, *Phys. Rev.* **101**, 459.
20. Renormalization Constants, *Phys. Rev.* **101**, 1183.
21. Application of Dispersion Relations to Low Energy Meson–Nucleon Scattering (with *G. F. Chew, M. L. Goldberger and F. E. Low*), *Phys. Rev.* **106**, 1337.
22. Relativistic Dispersion Relation Approach to Photomeson Production (with *G. F. Chew, M. L. Goldberger and F. E. Low*), *Phys. Rev.* **106**, 1345.

1957

23. Possible Existence of a Heavy Neutral Meson, *Phys. Rev.* **106**, 1366.
24. Dispersion Relations for Nucleon–Nucleon Scattering (with *M. L. Goldberger and R. Oehme*), *Ann. Phys.* **2**, 226.
25. Parametric Representations of General Green's Functions, *IL Nuovo Cimento X* **6**, 1064.

1958

26. Dispersion Relations for Form Factors, *IL Nuovo Cimento X* **9**, 610.
27. Dispersion Theory Treatment of Pion Production in Electron–Nucleon Collisions (with *S. Fubini and V. Wataghin*), *Phys. Rev.* **111**, 329.

1960

28. Quasi-Particles and Gauge Invariance in the Theory of Superconductivity, *Phys. Rev.* **117**, 648.
29. Axial Vector Current Conservation in Weak Interactions, *Phys. Rev. Lett.* **4**, 380.
30. Electro-production of π -Mesons (with *R. Blankenbecler, S. Gartenhous and R. Huff*), *IL Nuovo Cimento X* **17**, 775.
31. Anomalous Thresholds in Dispersion Theory I (with *R. Blankenbecler*), *IL Nuovo Cimento X* **18**, 595.

1961

32. Odd $\Lambda\Sigma$ Parity and the Nature of the $\pi\Lambda\Sigma$ Coupling (with *J. J. Sakurai*), *Phys. Rev. Lett.* **6**, 377.
33. A 'Superconductor' Model of Elementary Particles and Its Consequences, in the *Proceedings of the Midwest Conference on Theoretical Physics*, eds. F. J. Belin-

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36. Possible Bound $\Sigma - \Lambda$ System (with *E. Shrauner*), *IL Nuovo Cimento X* **21**, 864.

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38. Soft Pion Emission Induced by Electromagnetic and Weak Interactions (with *E. Shrauner*), *Phys. Rev.* **128**, 862.

39. Magnetic Field Dependence of the Energy Gap in Superconductors (with *San Fu Tuan*), *Phys. Rev.* **128**, 2622.

40. Rare Decay Modes of the $\omega(\eta)$ Meson (with *J. J. Sakurai*), *Phys. Rev. Lett.* **8**, 79.

1963

41. Double Phase Representation of Analytic Functions (with *M. Sugawara*), *Phys. Rev.* **131**, 2335.

42. High-Energy Behavior of Total Cross-Sections (with *M. Sugawara*), *Phys. Rev.* **132**, 2724.

43. Magnetic Field and Phase Transition in Thin Film Superconductors (with *San Fu Tuan*), *Phys. Rev. Lett.* **11**, 119.

44. Non-Shrinking Diffraction Scattering (with *M. Sugawara*), *Phys. Rev. Lett.* **10**, 304.

45. $K^*(725)$ and the Strangeness-changing Currents of Unitary Symmetry (with *J. J. Sakurai*), *Phys. Rev. Lett.* **11**, 42.

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1964

47. Considerations on the Magnetic Field Problem in Superconducting Thin Films (with *San Fu Tuan*), *Phys. Rev.* **133**, A1.
48. Axial Vector Mesons (with *P. Freund*), *Phys. Lett.* **12**, 248.
49. Broken $SU(x) \times SU(3) \times SU(3) \times SU(3)$ Symmetry of Strong Interactions (with *P. Freund*), *Phys. Rev. Lett.* **12**, 714.
50. Mass and Coupling Constant Formulas in Broken Symmetry Schemes (with *P. Freund*), *Phys. Rev. Lett.* **13**, 221.
51. Magnetic Field and Phase Transitions in Superconducting Thin Films (with *San Fu Tuan*), *Rev. Mod. Phys.* **36**, 288.
52. Quasi-elementary Massless Bosons Associated with the Quantum Electrodynamics of Johnson, Baker and Willy, *Phys. Lett.* **9**, 214.
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1965

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55. Dynamical Symmetries and Fundamental Fields, in the *Proceedings of Coral Gables Conference 1965*, eds. B. Kursunoglu, A. Perlmutter and I. Sakmar (W. H. Freeman and Co.), p. 274.
56. Broken $SU(3) \times SU(3) \times SU(3) \times SU(3)$ Symmetry (with *P. Freund*), *Ann. Phys.* **32**, 201.
57. Triplets, Static $SU(6)$, and Spontaneously Broken Chiral $SU(3)$ Symmetry, in the *Proceedings of the International Conference on Elementary Particles, in Commemoration of the Thirtieth Anniversary of Meson Theory*, Kyoto, 1965, ed. Y. Tanikawa,

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- 60. Electromagnetic Properties of the Baryon (Hyperfine Structure of Hydrogen), in *1965 Tokyo Summer Lecture, Part II*, ed. G. Takeda (Shokabō Publishing), p. 87.

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- 62. Coupling Constant Relations for 1^\pm and Induced 0^\pm Mesons (with *J. Cronin*), *IL Nuovo Cimento A* **41**, 380.
- 63. Nonleptonic Decays of K-Mesons (with *Y. Hara*), *Phys. Rev. Lett.* **16**, 875.
- 64. Nonleptonic Decays of Hyperons (with *Y. Hara and J. Schechter*), *Phys. Rev. Lett.* **16**, 380.
- 65. Relativistic Wave Equations for Particles with Internal Structure and Mass Spectrum, *Prog. Theor. Phys. Suppl.* **37** and **38**, 368.

1967

- 66. Infinite Multiplets, in the *Proceedings of 1967 International Conference on Particles and Fields*, eds. C. R. Hagen *et al.* (Interscience), p. 347.
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1968

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1970

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1971

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- 80. Gauge Conditions in Dual Resonance Models (with *F. Mansouri*), *Phys. Lett. B* **39**, 375.
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- 83. Generalized Hamiltonian Dynamics, *Phys. Rev. D* **7**, 2405.
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1974

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1975

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1976

- 90. Magnetic and Electric Confinement of Quarks, talk given at *Topical Conference on*

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1986

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1991

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1992

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1993

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1994

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1997

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Yukawa Symposium, 1996 (World Scientific), p. 1.

1998

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- 151. Particle Physics in Perspective, talk given at *Quen 97*, Osaka University, *Nucl. Phys. A* **638**, 35c.

2000

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2002

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2004

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2005

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2007

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- 160. Nobel Lecture, *Rev. Mod. Phys.* **81**, 1019, also in *Chem. Phys.* **10**, 1718, and *Int. J. Mod. Phys. A* **24**, 2371.

2010

- 161. Energy Gap, Mass Gap, and Spontaneous Symmetry Breaking, *Int. J. Mod. Phys. A* **25**, 4141.

Biographical Data

Yoichiro Nambu

Date of birth : 18 January 1921

Place of birth : Tokyo, Japan

U.S. Citizenship : 1970

Education

B.S. University of Tokyo 1942

Ph.D. University of Tokyo 1952

Positions

1950–1956	Osaka City University,	Professor
1952–1954	Institute for Advanced Study,	Member
1954–1956	University of Chicago,	Research Associate
1956–1958	University of Chicago,	Associate Professor
1958–1990	University of Chicago,	Professor
1971–1976	University of Chicago,	Distinguished Service Professor
1976–1991	University of Chicago,	Harry Pratt Judson Distinguished Service Professor
1991–present	University of Chicago,	Emeritus Professor

Honors

Dannie Heineman Prize for Mathematical Physics,	1970
Member, National Academy of Sciences,	1971
Member, American Academy of Arts and Sciences,	1971
J. Robert Oppenheimer Prize, University of Miami,	1976
Order of Culture, Government of Japan,	1978
Honorary Degree, Osaka City University,	1980
United States National Medal of Science,	1982
Honorary Member, Japan Academy,	1984
Max Planck Medal, German Physical Society,	1985
Honorary Degree, Northwestern University,	1985
P.A.M. Dirac Medal, International Center for Theoretical Physics, Trieste,	1986
Sakurai Prize, American Physical Society,	1994
Wolf Prize, Government of Israel,	1995
Gian Carlo Wick Medal, World Federation of Scientists Lausanne,	1996
Honorary Degree, Osaka University, Japan,	1997
Fukui Prefectural Award, Japan,	2003
N. N. Bogoliubov Prize, Joint Institute for Nuclear Research, Russia,	2003
Benjamin Franklin Medal,	2005
Pomeranchuk Prize, Institute of Theoretical and Experimental Physics, Russia,	2007
Nobel Prize in Physics,	2008
Honorary Member, Physical Society of Japan,	2009