



## GOTTFRIED HOLZWARTH

### List of publications (Journals and/or arXiv)

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1. Elastic scattering of relativistic electrons by screened gold and mercury nuclei  
(with H.J. Meister)  
Nucl.Phys. **59** (1964) 56
2. Polarization effects in electron-electron and positron-electron scattering  
Z.Phys. **191** (1966) 354
3. A microscopic theory of nuclear collective motion  
Nucl.Phys. **A 113** (1968) 448
4. Microscopic aspects of the nuclear collective model (II)  
Nucl.Phys. **A 133** (1969) 161
5. The transition spherical-deformed for collective  $K = 0$  states in even nuclei  
Nucl.Phys. **A 156** (1970) 511
6. On the treatment of anharmonicities in the collective spectra of intermediate nuclei  
Nucl.Phys. **A 174** (1971) 97
7. The collective structure of the intermediate nuclei  $^{78}\text{Se}$  and  $^{102}\text{Ru}$   
(with S.G. Lie)  
Z.Phys. **249** (1972) 332
8. The connection between the generator method and Bose expansions  
Nucl.Phys. **A 185** (1972) 268
9. Boson expansions and Hartree-Bogoliubov theory  
(with E.R. Marshalek)  
Nucl.Phys. **A 191** (1972) 438
10. Four approaches to the function of inertia in a solvable model  
Nucl.Phys. **A 207** (1973) 545
11. Choice of the constraining operator in the constrained Hartree-Fock method  
(with T. Yukawa)  
Nucl.Phys. **A 219** (1974) 125

12. Population of muonic  ${}^3\text{He}$  states following the  $\mu$ -catalysed fusion  $p\mu d \rightarrow \mu{}^3\text{He}$   
(with M. Kleber)  
Phys.Lett. **51 B** (1974) 17
13. The muonic X-ray cascade in Fluorine following the  $\mu$ -transfer from Hydrogen  
(with H.J. Pfeiffer)  
Z.Phys. **A 272** (1975) 311
14. Application of the boson-expansion method to even *Se* and *Ru* isotopes  
(with S.G. Lie)  
Phys.Rev. **C 12** (1975) 1035
15. Application of the Marumori Bose-expansion to transitional nuclei  
(with S.G. Lie)  
Fisika (Zagreb) **7** (1975) 1
16. On the validity of the boson method for transitional nuclei  
(with D. Janssen and R.V. Jolos)  
Nucl.Phys. **A 261** (1976) 1
17. Static and dynamical Thomas Fermi theory for nuclei  
Phys.Lett. **66 B** (1977) 29
18. Selfconsistent Thomas Fermi method for spherical nuclei  
(with G. Eckart)  
Z.Phys. **A 281** (1977) 385
19. Density compression in colliding nuclear slabs  
Phys.Rev. **C 16** (1977) 885
20. The nuclear twist  
(with G. Eckart)  
Z.Phys. **A 283** (1977) 219
21. Giant resonances: A comparison between TDHF and fluid dynamics in small  
amplitude vibrations of spherical nuclei  
(with. H. Sagawa)  
Progr.Theor.Phys. **59** (1978) 1213
22. Nuclear fluid dynamics  
(with G. Eckart)  
Z.Phys. **A 284** (1978) 291
23. Vorticity in nuclear fluid dynamics  
(with D. Schütte)  
Phys.Lett. **73 B** (1978) 255

24. The influence of the pairing degrees of freedom on the collective excited states  
(with F. Sakata)  
Progr.Theor.Phys. **61** (1979) 1649
25. Fluid-dynamical approximation for finite Fermi systems  
(with G. Eckart)  
Nucl.Phys. **A 325** (1979) 1
26. Dynamical Thomas-Fermi theory for giant monopole resonances  
(with G. Eckart)  
Phys.Lett. **87 B** (1979) 147
27. Excitation of the  $2^-$  twist mode by inelastic electron scattering  
(with B. Schwesinger and K. Pingel)  
Nucl.Phys. **A 341** (1980) 1
28. Electric multipole modes in the fluid-dynamical approximation  
(with G. Eckart and B. Schwesinger)  
Phys.Lett. **94 B** (1980) 453
29. First sound versus zero sound in finite Fermi systems  
(with G. Eckart and J.P. da Providencia)  
Nucl.Phys. **A 364** (1981) 1
30. Landau theory of Fermi liquids and nuclear fluid dynamics  
(with T. Yukawa)  
Nucl.Phys. **A 364** (1981) 29
31. Flow patterns of giant resonances in first and zero sound approximation  
(with H. Koch, G. Eckart and B. Schwesinger)  
Nucl.Phys. **A 373** (1982) 173
32. Sum rules and strength functions in nuclear fluid dynamics  
(with G. Eckart)  
Phys.Lett. **118 B** (1982) 9
33. Nuclear fluid dynamics for giant resonances  
(with G. Eckart)  
Nucl.Phys. **A 396** (1983) 171
34. Variational approach to nuclear fluid dynamics  
(with J.P. da Providencia)  
Nucl.Phys. **A 398** (1983) 59

35. Spreading width of giant resonances and the attenuation of zero sound  
(with K. Ando and A. Ikeda)  
Z.Phys. **A 310** (1983) 223
36. Doorway-state analysis of the fine structure in the giant quadrupole resonance  
in  $^{208}\text{Pb}$  observed in inelastic electron scattering  
(with J. Winchenbach, K. Pingel, G. Kühner, A. Richter)  
Nucl.Phys. **A 410** (1983) 237
37. Spreading width of giant resonances in fluid-dynamical approximation  
(with K. Ando and A. Hayashi)  
Phys.Lett. **138 B** (1984) 333
38. Excited nucleon states in the Skyrme model  
(with A. Hayashi)  
Phys.Lett. **140 B** (1984) 175
39. Pion-Nucleon scattering phase shifts in the Skyrme model  
(with A. Hayashi, G. Eckart and H. Walliser)  
Phys.Lett. **147 B** (1984) 5
40. Effect of the Pauli principle on collective states in transitional Xe, Ba and Ce  
nuclei  
(with U. Kaup)  
Nucl.Phys. **A 445** (1985) 419
41. Low-lying nuclear collective states and giant resonances in nuclear fluid dy-  
namics  
(with J.P. da Providencia)  
Nucl.Phys. **A 439** (1985) 477
42. Das Skyrme-Modell  
Physikalische Blätter, Heft 11, (1985), 378
43. Baryons in the Skyrme model  
(with B. Schwesinger)  
Reports on Progress in Physics **49** (1986) 825-872
44. Geometrical and dynamical aspects of skyrmion fluctuations  
(with G. Eckart and A. Hayashi)  
Nucl.Phys. **A 448** (1986) 732
45. Baryon-Antibaryon configurations in the Skyrme model  
(with H. Walliser and A. Hayashi)  
Nucl.Phys. **A 456** (1986) 717

46. Exotic baryon number  $B=2$  states in the  $SU(2)$  Skyrme model  
(with H. Weigel and B. Schwesinger)  
Phys.Lett **168 B** (1986) 321
47. The width of the  $\Delta$  (1232) resonance in the Skyrme model  
(with A. Hayashi and B. Schwesinger)  
Phys.Lett. **191 B** (1987) 27
48. The Skyrme soliton in pion-, vector- and scalar- meson fields:  $\pi N$ -scattering  
and photoproduction  
(with A. Hayashi, B. Schwesinger and H. Weigel)  
Phys.Rep. **173** (1989) 175
49. The moment of inertia for Skyrme solitons in the presence of vector mesons  
(with B. Stötzzel and H. Walliser)  
Nucl.Phys. A **499** (1989) 686
50. The intermediate-range attraction of the nucleon-nucleon force in a Skyrme  
model with explicit  $\sigma$ -mesons  
(with H. Yabu and B. Schwesinger)  
Phys.Lett. **B 224** (1989) 25
51. Elastic pion nucleon P-wave scattering in soliton models  
Phys.Lett. **B 241** (1990) 165
52. Low-energy pion-nucleon P-wave scattering in the Skyrme-model  
(with G. Pari and B.K. Jennings)  
Nucl.Phys. **A 515** (1990) 665
53. A comment on the status of Skyrme model results for  $\pi N$ -scattering  
 $\pi N$  Newsletter **2** (1990) 75-80  
G.Hoehler, W.Kluge and B.Nefkens (Eds.)
54. Low-energy S-wave pion-nucleon scattering in the Skyrme model: a PWBA-  
analysis  
(with H. Walliser and G. Pari)  
Z.Phys.A **339** (1991) 195
55.  $\pi$ -N scattering in Skyrme-type models  
Fourth Intern. Symp. on Pion-Nucleon Physics and the Structure of the  
Nucleon, Bad Honnef, Sept. 9-13, 1991  
R.E. Cutkosky, G.Hoehler, W.Kluge and B.Nefkens (Eds.)  
 $\pi N$  Newsletter **4** (1991) 69-79

56. Low-energy  $\pi N$  S-wave scattering in the vector meson extended Skyrme model  
(with D.Masak and H.Walliser)  
Nucl.Phys.**A 536** (1992) 583
57. Quantum corrections to nucleon and delta mass in the Skyrme model  
Phys.Lett. **B 291** (1992) 218
58. The Gottfried sum rule in the soliton model for baryons  
(with H.Walliser)  
Phys.Lett. **B 302** (1993) 377
59. The mass of the nucleon in the Skyrme model  
V. Intern. Symposium on Meson-Nucleon Physics and the Structure of the Nucleon, Boulder, Colorado, 1993;  
 $\pi N$  Newsletter **8** (1993) 86-91  
G.Hoehler, W.Kluge, B.Nefkens (Eds.),ISSN 0942-4148
60. The nucleon mass in the Skyrme model  
Nucl.Phys.**A 572** (1994) 69-84
61. Quantum corrections to the skyrmion mass  
(with H.Walliser)  
Nucl.Phys. **A 587** (1995) 721-746
62. The Electromagnetic Form Factors of the Proton in Chiral Soliton Models  
Sixth Intern. Symp. on Meson-Nucleon Physics and the Structure of the Nucleon, Blaubeuren, July 10-14, 1995  
 $\pi N$  Newsletter **10** (1995) 103  
hep-ph/9507360
63. Baryons as Solitons in Effective Chiral Field Theories  
Lecture at Int. School of Nuclear Physics Ettore Majorana Centre,  
Erice, Sept.1995  
Prog. Part. Nucl. Phys. **36** (1996) 161-176  
hep-ph/9511249
64. Electro-Magnetic Nucleon Form Factors and their Spectral Functions in Soliton Models  
Z.Physik **A 356** (1996) 339-350  
hep-ph/9606336
65. Electro-excitation amplitudes of the  $\Delta$ -isobar in the Skyrme model  
(with H. Walliser)  
Z.Physik **A 357** (1997) 317-324  
hep-ph/9607367

- 66. Skyrme-model  $\pi NN$  form factor and nucleon-nucleon interaction  
(with R. Machleidt)  
Phys. Rev. **C 55** (1997) 1088 - 1095  
hep-ph/9610041
- 67. Baryon number conservation and the formation of disoriented chiral condensates  
hep-ph/9612370
- 68. Chiral Phase Transition and Baryon Number Conservation  
Phys. Rev. **D 57** (1998) 3749 - 3758  
hep-ph/9712431
- 69. Formation of extended topological defects during symmetry breaking phase transitions in  $O(2)$  and  $O(3)$  models  
Phys.Rev. **D 59** (1999) 105022  
hep-ph/9901296
- 70. Skyrmions and bags in the 2-D- $O(3)$  model  
Nucl.Phys. **A 672** (2000) 167-180  
hep-ph/9905473
- 71. The Casimir energy of skyrmions in the (2+1)-dimensional  $O(3)$  model  
(with H. Walliser)  
Phys.Rev. **B 61** (2000) 2819  
hep-ph/9907492
- 72. Skyrme model and electromagnetic form-factors of the nucleon  
Workshop on the Structure of the Nucleon (Nucleon 99), Frascati, Italy, 7-9  
Jun 1999.  
Nucl.Phys. **A 666** (2000) 24-28
- 73. Features of phase ordering in (2+1) D- $O(3)$  models  
(with J. Klomfass)  
Phys.Rev. **D 63** (2001) 025021  
hep-ph/0009061
- 74. DCC dynamics in (2+1)-dimensions  $O(3)$  model  
hep-ph/0107034  
July 2001
- 75. Disoriented chiral condensate dynamics in the (2+1)-dimensional  $O(3)$  model  
Phys.Rev. **D 65** (2002) 054013

76. Electromagnetic form-factors of the nucleon in the chiral soliton model  
hep-ph/0201138  
January 2002
77. The Chiral phase transition in dissipative dynamics  
(with J. Klomfass)  
Phys.Rev. **D 66** (2002) 045032  
hep-ph/0206228
78. Field dynamics and kink - anti-kink production in rapidly expanding systems  
Phys.Rev. **D 68** (2003) 016008  
hep-ph/0303208
79. The topological approach to baryon-antibaryon and meson production in  
rapidly expanding Bjorken rods  
Phys.Rev. **D 70** (2004) 036001  
hep-ph/0404172
80. Electromagnetic form-factors of the nucleon in chiral soliton models  
Workshop on Nucleon Form Factors (N05), Frascati, Italy, 12-14 Oct 2005  
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## List of publications (Proceedings)

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1. "On a Microscopic Theory of Intermediate Nuclei"  
in 'Les Noyaux de Transition' Rapport Colloquium on intermediate nuclei,  
June 30 - July 2, 1971, Institut de Physique Nucleaire d'Orsay, (1971), 49-53
2. "Boson Approach to Transitional Nuclei"  
"Fluid Dynamics and Large Amplitude Collective Motion"  
"Boson Approach to Transitional Nuclei" (with D. Janssen and R.V. Jolos)  
Proceedings of the Colloque Franco-Japonais de Spectroscopie Nucleaire, Do-  
gashima 20-23 September, (1976)  
and INS Symposium on Nuclear Collectivity, Tokyo 20-25, September,(1976)  
431-435; 568-569; 609  
Institute for Nuclear Study, University of Tokyo, 1976
3. "Fluid Dynamics versus TDHF"  
in 'Heavy-Ion Collisions'  
Proc. of Fall Creek Falls Meeting, Pikeville TN, USA, June 13-17, 1977  
Oak Ridge Nat. Lab. 1977
4. "Fluid-Dynamical Approximation for Finite Fermi Systems"  
in 'Giant Multipole Resonances', Proc. of the GMR Topical Conference, Oak  
Ridge, TN, USA, October 15-17, (1979) 445 (F.E. Bertrand, Ed.)  
Nuclear Science Res. Conf. Series, Vol. 1, Harwood Acad. Publ., Chur 1980.
5. "The Application of Dynamical Thomas-Fermi-Theory to Nuclear Collective  
Motion" (with G. Eckart)  
IV. Balaton Conference on Nuclear Physics;  
Proceedings of the EPS Topical Conference on 'Large Amplitude Collective  
Nuclear Motion',  
Keszthely - Hungary, 10-16. June (1979), VOLUME 1, 198-207
6. "Multi-Phonon Approach to Quadrupole Boson Hamiltonians  
in 'Nuclear Physics', Proc. of the Nuclear Physics Workshop,  
I.C.T.P., Trieste, Italy, 5-30 Oct.1981, 1-13  
( C.H. Dasso, Ed.), North Holland P.C., Amsterdam 1982
7. "Nuclear Fluid Dynamics for Giant Resonances"  
(with G. Eckart)  
Proc. of the Int. Conf. on Nuclear Structure,  
Amsterdam (1982) Vol. 1, 111, (A.van der Woude and B.J. Verhaar, Editors)

8. "Nuclear Fluid Dynamics for Giant Resonances", (with G. Eckart);  
 Proceedings of the Topical Meeting on Nuclear Fluid Dynamics  
 Trieste, 11-15 October 1982, 41-46;  
 IAEA; International Centre for Theoretical Physics, Trieste, (1983)
9. "Variational Approach to Nuclear Fluid Dynamics"  
 (with J.P. da Providencia);  
 Proceedings of the Topical Meeting on Nuclear Fluid Dynamics  
 Trieste, 11-15 October 1982, 117-121;  
 IAEA; International Centre for Theoretical Physics, Trieste, (1983)
10. "Fluidodynamical Models for Giant Resonances"  
 Progress of Theoretical Physics, Suppl. Nos. 74/75 (1983), 357-366  
 Microscopic Theories of Nuclear Collective Motions, Proceedings of the 5th  
 Kyoto Summer Institute, Kyoto, July 12-16, 1982
11. "The Scaling Approach to Nuclear Giant Multipole Resonances"  
 Proceedings of a NATO ASI on density functional methods in physics, Septem-  
 ber 5-16, 1983, Alcabideche, Portugal  
 (R.M.Dreizler and J.da Providencia, Editors)  
 NATO ASI Series, Plenum **B 123** (1983) 381-400
12. "Fluid Dynamical Methods for the Description of Nuclear Giant Multipole  
 Resonances"  
 Proceedings of the Winter College on Fundamental Nuclear Physics  
 (K.Dietrich, M.di Toro, HJ.Mang, Editors)  
 International Centre for Theoretical Physics, Trieste, Italy , 7 Feb.-30 Mar  
 (1984), World Scientific, Volume 2, 967-989
13. "Pion-Nucleon Scattering in the Skyrme Model"  
 Proceedings of the International Workshop on Gross Properties of Nuclei  
 and Nuclear Excitations XIII, Hirschegg, Kleinwalsertal, Austria, Jan. 14-  
 19, (1985) 186-189
14. "Skyrmions and Vector Mesons"  
 Proceedings of the 1987 Cape Town Workshop ' Quarks, Gluons and Hadronic  
 Matter', R.D.Viollier and N.Warner (Eds.), 23-46  
 World Scientific Publ. Co., Singapore 1987
15. "Meson Baryon Scattering and Photoproduction in effective Meson Theories"  
 Proceedings of the Intern. Conf. on the Theory of Few Body and Quark-  
 Hadronic Systems, Dubna, USSR, June 1987, 228-243

16. "Baryon Resonances in Effective Meson Theories"  
 Proceedings of the Intern. Workshop on Meson-Baryon Physics  
 B.Nefkens (Ed.), Los Alamos, NM, August 1987, 220-236
17. "Baryons as solitons in meson fields"  
 Proceedings of the Fourth Students' Workshop on Electromagnetic Interactions  
 D.Drechsel (Ed.), Bosen (Saar), 1987, 92-109
18. "The  $\pi$ N-System in a Model of Skyrmions and Vector Mesons"  
 Academy of Science of the USSR; Nuclear Physics Inst.;  
 Proceedings of the third International Symposium  
 'Pion-Nucleon and Nucleon-Nucleon Physics',  
 Gatchina, USSR, April 1989, Vol.2, 318-337
19. "Skyrmions and Vector Mesons"  
 In: P.W-Y.Hwang and J.Speth, (Eds.): Proc. of Chinese-German Symposium  
 on Medium Energy Physics 'Progress in Medium Energy Physics', Singapore:  
 World Scientific (1990) 91-108
20. Lecture series on  
 "Recent developments in the Soliton Model for Baryons"  
 Proceedings of the 'Workshop on Hadron Physics' at Ubatuba  
 Sao Paulo, Brasil, 1992
21. "Low-energy  $\pi$ -N scattering S and P waves and quantum corrections to the  
 soliton mass"  
 in: 'Baryons as Skyrme solitons', Int. Workshop at Siegen 1992,  
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22. "Nucleon-Antinucleon annihilation in the Skyrme model"  
 (with B. Stötzel)  
 in: 'Baryons as Skyrme solitons', Int. Workshop at Siegen 1992,  
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23. "Recent Results from the Soliton Model for Baryons"  
 Proc. of the International Conference on  
 'Many-Body Physics', Coimbra, Portugal; 85-92  
 (C.Fiolhais, M.Sousa, C.Urbano, J.N. Urbano, Eds.)  
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24. "Chiral Symmetry Restoration and Baryon Number Conservation"  
Proc. Int. Workshop XXV on Gross Properties of Nuclei and Nuclear Excitations,  
Hirschegg, Austria, January 13-18, 1997, 232-236  
(H. Feldmeier, J. Knoll, W. Nörenberg, J. Wambach, Eds.) GSI Darmstadt  
1997
25. "Baryons in the Soliton Model"  
in 'Baryon Excitations', Lectures of the COSY Workshop  
FZ Jülich, May 2-3 2000, (T. Barnes and H.-P. Morsch, Eds.) Matter and  
Materials, Vol.6, 117-120, ISBN 3-89336-273-8
26. Editor of:  
'Baryons as Skyrme Solitons'  
International Workshop, Siegen, Sept. 1992  
Singapore, World Scientific 1993, 445 ps  
ISBN 981-02-1408-1
27. "Electromagnetic Form Factors of the Nucleon  
in Chiral Soliton Models"  
Chapter 3 in "The multifaceted skyrmion "  
Second edition, M. Rho and I. Zahed, Eds., p.49-63  
World Scientific, Singapore 2017; ISBN 9789814704403