

# CURRICULUM VITAE

P.J.G. Mulders

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# 1 CURRICULUM VITAE

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## Personal data

name: Mulders, Petrus Johannes Gerardus  
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## Education

1965 - 1971 'Gymnasium B', Venray, the Netherlands.  
1971 - 1976 Physics study at the University of Nijmegen, the Netherlands  
(specialization: Theoretical High Energy Physics).  
'Kandidaatsexamen': March 14, 1974 (cum laude)  
'Doctoraalexamen': April 8, 1976 (cum laude)  
1976 - 1980 Ph.D. at the University of Nijmegen.  
Thesis defence: May 2, 1980  
Thesis title: "Multiquark States in the Bag Model"  
Supervisor: J.J. de Swart

## Work experience

1974 - 1976 Several Student Teaching Assistantships at the University of Nijmegen.  
1976 - 1980 Ph. D. position (FOM) at the University of Nijmegen.  
1980 - 1982 Research Associate in the Theory Division (T-5),  
Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.  
1982 - 1984 Research Associate in the Center for Theoretical Physics,  
Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.  
1984 - 1997 Research Staff Member in the Theory Division,  
National Institute for Nuclear Physics and High Energy Physics,  
(NIKHEF/FOM), Amsterdam, the Netherlands  
1990 - 1995 Professor (Extraordinarius) in Theoretical Intermediate Energy Physics,  
Vrije Universiteit, Amsterdam.  
Since 1995 Professor in Theoretical Physics (full-time since 1998),  
Vrije Universiteit, Amsterdam.

## Selected professional activities

- Participant in NuPECC (Nuclear Physics European Collaboration Committee) working groups on 'Future of Nuclear Physics in Europe'; early 1990s.
- Chief editor of the "Nederlands Tijdschrift voor Natuurkunde" (Journal of the Dutch Physical Society); 1998-2000.
- Referee for various journals (a.o. Nuclear Physics A and B, Physical Review C and D, Physical Review Letters, Physics Letters B, Few Body Physics, European Physics Journal C, Journal of Physics G, Journal for High Energy Physics).
- Scientific Advisory Committee European Physics Journal (since 2007)
- Associate editor of Nuclear Physics A.
- Advisory board of the Kernfysisch Versneller Instituut (KVI), Groningen; 1998-2003; Scientific Advisory Committee of KVI, Groningen; since 2007
- Co-organiser of several large international conferences and summer schools, as well as many smaller topical meetings, e.g. the 1996 International Symposium of High-energy Spin Physics in Amsterdam, the 1999 Summer School on Particle Production spanning MeV and TeV energies in Nijmegen, the 2003 Summer School on Nuclear and Particle Astrophysics, Nijmegen, the 2006 Second Intl School on Particle Astrophysics, Arnhem and the 2009 Third Intl School on Particle Astrophysics, Nijmegen.
- Advisory boards of various international conferences in Nuclear and Particle Physics [e.g. International Conference on Particles and Nuclei, PANIC 2008 (Eilat, Nov. 2008), International conference on the structure of baryons, BARYONS10 (Osaka, Dec. 2010)].
- Member of 'Educational Committees' of Dutch Research Schools in Subatomic Physics and Theoretical Physics (Chairman from 2005-2011).
- Chairman of the 'Opleidingscommissie' Physics and Astronomy at the Vrije Universiteit in Amsterdam, 1998-2002.
- Chairman of the Department of Physics and Astronomy of the Faculty of Sciences at the Vrije Universiteit, 2002-2006.
- Member of the American Physical Society (APS).
- Member of European Physical Society (EPS)
- Member of Dutch Physical Society (NNV).
- Member of board NNV, since 2000; secretary in board of NNV since 2006.
- Member of steering committee of the TMR (Training and Mobility of Researchers) network "Hadronic Physics with High-energy Electromagnetic Probes" (HAPHEEP) consisting of 12 collaborating universities (involving in total 36 postdoc years), 1996-2000 and its successor the IHP (Improving Human Potential) network "Electron Scattering off confined Partons" (ESOP) consisting of 12 collaborating universities (involving in total 30 postdoc years), 2001-2004.

- Working group leader of FOM working group FOM-V-01.
- Programme leader of FOM programme FP31 (Fundamental Interactions); 2002-2008.
- Chairman of FOM network Theoretical High Energy Physics; 2002-2008.
- Member of various selection committees; chairman of the NWO Rubicon Committee 2008.
- Dutch Liaison Commission Representative for International Union of Pure and Applied Physics (IUPAP), since 2006.
- Program Advisory Committee of Jefferson National Laboratory (TJNAF), Newport News, Virginia, U.S.A., since 2009

## 2 SCIENTIFIC PUBLICATIONS

### 2.1 publications in refereed journals

1. A.T. Aerts, P.J. Mulders, and J.J. de Swart, "Multi-baryon states in the bag model", Phys. Rev. D17 (1978) 260
2. P.J. Mulders, A.T. Aerts, and J.J. de Swart, "Negative parity NN resonances and extraneous states", Phys. Rev. Lett. 40 (1978) 1543
3. P.J. Mulders, A.T. Aerts, and J.J. de Swart, "Multiquark states I.  $Q^3$  baryon resonances", Phys. Rev. D19 (1979) 2535
4. A.T. Aerts, P.J. Mulders, and J.J. de Swart, "Multiquark states II.  $Q\bar{Q}$  and  $Q^2\bar{Q}^2$  mesons", Phys. Rev. D21 (1980) 1370
5. P.J. Mulders, A.T. Aerts, and J.J. de Swart, "Multiquark states III.  $Q^6$  dibaryon resonances", Phys. Rev. D21 (1980) 2653
6. P.J. Mulders, "Resonances in baryon-baryon and pion-deuteron scattering", Phys. Rev. D25 (1982) 1269
7. P.J. Mulders, "Quarks and baryon-baryon scattering. A P-matrix analysis of nucleon-nucleon scattering", Phys. Rev. D26 (1982) 3039
8. P.J. Mulders, Bhamathi, L. Heller, A.T. Aerts, and A.K. Kerman, "Phenomenological surface inertia in the MIT bag model", Phys. Rev. D27(1983) 2708
9. P.J. Mulders and A.W. Thomas, "Pionic corrections and multiquark bags", J. Phys. G9 (1983) 1159
10. P.J. Mulders, "Quark bags and the NN interaction", Phys. Rev. D28 (1983) 443
11. P.J. Mulders and A.W. Thomas, "The 'six quark' component in the deuteron from a comparison of electron and neutrino/anti-neutrino structure functions", Phys. Rev. Lett. 52 (1984) 1199
12. P.J. Mulders, "Theoretical aspects of hybrid chiral bag models", Phys. Rev. D30 (1984) 1073
13. P. Castorina and P.J. Mulders, "Twist four corrections to charged and neutral current neutrino scattering", Phys. Rev. D31 (1985) 2753
14. P. Castorina and P.J. Mulders, "Twist four corrections to asymmetry in polarized electron deuteron scattering", Phys. Rev. D31 (1985) 2760
15. P.J. Mulders, "Change of scale for nucleons in nuclei from quasi-elastic electron scattering", Phys. Rev. Lett. 54 (1985) 2560
16. B.L.G. Bakker and P.J. Mulders, "P-matrix methods in hadronic scattering", Adv. Nucl. Phys. 17 (1986) 1

17. G. van der Steenhoven, H.P. Blok, J.F.J. van den Brand, T. de Forest jr., J.W.A. den Herder, E. Jans, P.H. M. Keizer, L. Lapikás, P.J. Mulders, E.N.M. Quint, P.K.A. de Witt Huberts, J. Mougey, S. Boffi, C. Giusti, and F.D. Pacati, "Effect of the nuclear medium on the proton investigated with the  $^{12}\text{C}(e,e'p)^{11}\text{B}$  reaction", *Phys. Rev. Lett.* 57 (1986) 182
18. P.J. Mulders, "Effective hadronic degrees of freedom in electron-nucleus scattering", *Nucl. Phys.* A459 (1986) 525
19. T. de Forest and P.J. Mulders, "Effects of Quark Antisymmetrization in a Schematic Model of the Nucleus", *Phys. Rev.* D35 (1987) 2849
20. G. van der Steenhoven et al., "Nuclear Density Dependence of the Electron-Proton Coupling", *Phys. Rev. Lett.* 58 (1987) 1727
21. G. van der Steenhoven, H.P. Blok, M. Thies and P.J. Mulders, "Charge exchange processes in the quasi-elastic  $(e,e'p)$  and  $(e,e'n)$  reactions", *Phys. Lett.* 191B (1987) 227
22. P.J. Mulders and A.E.L. Dieperink, "Quark exchange effects in nuclei", *Nucl. Phys.* A483 (1988) 461
23. A.E.L. Dieperink and P.J. Mulders, "Quark exchange in quasi-elastic electron-nucleus scattering", *Nucl. Phys.* A489 (1988) 627
24. J. Kunz and P.J. Mulders, "Bound state approach for strange dibaryons in the Skyrme model", *Phys. Lett.* B215 (1988) 449
25. J. Kunz, P.J. Mulders and S. Pollock, "The spin structure of the nucleon and its evolution", *Phys. Lett.* B222 (1989) 481
26. P.J. Mulders, "Modifications of nucleons in nuclei and other consequences of the quark substructure", *Phys. Rep.* 158 (1990) 63
27. J. Kunz and P.J. Mulders, "Magnetic moments of hyperons in the bound state approach to the Skyrme model", *Phys. Lett.* B231 (1989) 335
28. W.F.M. Spit, A.G.M. van Hees and P.J. Mulders, "Quark exchange and nuclear form factors", *Nucl. Phys.* A510 (1990) 609
29. J. Kunz and P.J. Mulders, "Electromagnetic properties of hyperons in the bound state approach to the Skyrme model", *Phys. Rev.* D41 (1990) 1578
30. H. Meyer and P.J. Mulders, "Polarized and unpolarized structure functions in a diquark model for the nucleon", *Nucl. Phys.* A528 (1991) 589
31. J. Kunz, P.J. Mulders and G.A. Miller, "Charge distributions of hyperons", *Phys. Lett.* B255 (1991) 11
32. J. Levelt, P.J. Mulders and A.W. Schreiber, "Isospin distributions in the proton and the Gottfried sum rule from electroproduction of hadrons", *Phys. Lett.* B263 (1991) 498
33. A.W. Schreiber, P.J. Mulders, A.I. Signal and A.W. Thomas, "The pion cloud of the nucleon and its effect on deep inelastic structure", *Phys. Rev.* D45 (1992) 3069

34. P.J. Mulders, A.W. Schreiber and H. Meyer, "The convolution approach in deep inelastic scattering", Nucl. Phys. A549 (1992) 498
35. S. Scherer and P.J. Mulders, "Electromagnetic Polarizabilities of the Nucleon and Delta in the Skyrme Model", Nucl. Phys. A549 (1992) 521
36. W.F.M. Spit, A.G.M. van Hees, P.J. Brussaard and P.J. Mulders, "Quark exchange effects in deep inelastic scattering. I. Nuclear quark momentum distributions", Nucl. Phys. A570 (1994) 472-496
37. H. Meyer, W.F.M. Spit and P.J. Mulders, "Quark exchange effects in deep inelastic scattering. II. Nuclear Structure Functions", Nucl. Phys. A570 (1994) 497-510
38. J. Levelt and P.J. Mulders, "Quark correlation functions in deep inelastic semi-inclusive processes", Phys. Rev. D49 (1994) 96-113
39. J. Levelt and P.J. Mulders, "Time reversal odd fragmentation functions in semi-inclusive scattering of polarized leptons from unpolarized hadrons", Phys. Lett. B338 (1994) 357
40. R.D. Tangerman and P.J. Mulders, "Intrinsic transverse momentum and the polarized Drell-Yan process", Phys. Rev. D51 (1995) 3357-3372
41. R.D. Tangerman and P.J. Mulders, "Polarized twist-three distributions  $g_2$  and  $h_2$  and the role of intrinsic transverse momentum", NIKHEF-94-P7, hep-ph/9408305 (unpublished)
42. Y. Umino, J.M. Udias and P.J. Mulders, "Exchange current corrections to neutrino-nucleus scattering", Phys. Rev. Lett. 74 (1995) 4993-4996
43. P.J. Mulders and S.J. Pollock, "Evolution of the spin of the nucleon", Nucl. Phys. A588 (1995) 876-888
44. G.I. Poulis and P.J. Mulders, "Is QED inconsistent in the presence of Dirac monopoles?", Z. Phys. C 67 (1995) 181-182
45. R.D. Tangerman and P.J. Mulders, "Probing transverse quark polarization in deep inelastic lepton production", Phys. Lett. B 352 (1995) 129-133
46. P.J. Mulders and R.D. Tangerman, "The complete tree-level result up to order  $1/Q$  for polarized deep-inelastic lepton production", Nucl. Phys. B461 (1996) 197-237 and Erratum Nucl. Phys. B484 (1997) 538
47. A.M. Kotzinian and P.J. Mulders, "Longitudinal quark polarization in transversely polarized nucleons", Phys. Rev. D54 (1996) 1229-1232
48. A.M. Kotzinian and P.J. Mulders, "Probing transverse quark polarization via azimuthal asymmetries in lepton production", Phys. Lett. B406 (1997) 373-380
49. D. Boer, R. Jakob and P.J. Mulders, "Asymmetries in polarized hadron production in  $e^+e^-$  annihilation up to order  $1/Q$ ", Nucl. Phys. B504 (1997) 345
50. R. Jakob, P.J. Mulders and J. Rodrigues, "Modelling quark distribution and fragmentation functions", Nucl. Phys. A626 (1997) 937-965
51. D. Boer, P.J. Mulders and O.V. Teryaev, "Single spin asymmetries from a gluonic background in the Drell-Yan process", Phys. Rev. D57 (1998) 3057-3064

52. D. Boer, R. Jakob and P.J. Mulders, "Leading asymmetries in two-hadron production in  $e^+e^-$  annihilation at the Z pole", Phys. Lett. B424 (1998) 143-151
53. D. Boer and P.J. Mulders, "Time-reversal odd distribution functions in lepton production", Phys. Rev. D57 (1998) 5780-5786
54. M. Boglione and P.J. Mulders, "Time-reversal odd fragmentation and distribution functions in pp and ep single spin asymmetries", hep-ph/9903354, Phys. Rev. D 60 (1999) 054007
55. D. Boer and P.J. Mulders, "Color gauge invariance in the Drell-Yan process", VUTH 99-12, hep-ph/9906223, Nucl. Phys. B 569 (2000) 505-526
56. D. Boer, R. Jakob and P.J. Mulders, "Angular dependences in electroweak semi-inclusive lepton production", hep-ph/9907504, Nucl. Phys. B 564 (2000) 471-485
57. A. Bacchetta, M. Boglione, A. Henneman and P.J. Mulders, "Bounds on transverse momentum dependent distribution and fragmentation functions", hep-ph/9912490, Phys. Rev. Lett. 85 (2000) 712-715
58. M. Boglione and P.J. Mulders, "Azimuthal Spin Asymmetries in Semi-Inclusive Production from Positron-Proton Scattering", hep-ph/0001196, Phys. Lett. B478 (2000) 114-120
59. A. Bacchetta and P.J. Mulders, "Deep inelastic lepton production of spin-one hadrons" VUTH-00-20, hep-ph/0007120, Phys. Rev. D 62 (2000) 114004
60. P.J. Mulders and J. Rodrigues, "Transverse momentum dependence in gluon distribution and fragmentation functions", VUTH-00-23, hep-ph/0009343, Phys. Rev. D 63 (2001) 094021
61. A. Bacchetta, R. Kundu, A. Metz and P.J. Mulders, "The Collins fragmentation function: a simple model calculation", hep-ph/0102278 Phys. Lett. B 506 (2001) 155-160
62. A. Bacchetta and P.J. Mulders, "Positivity bounds on spin one distribution and fragmentation functions", hep-ph/0104176, Phys. Lett. B 518 (2001) 85-93
63. A.A. Henneman, D. Boer and P.J. Mulders, "Evolution of transverse momentum dependent distribution and fragmentation functions", hep-ph/0104271, Nucl. Phys. B 620 (2002) 331-350
64. A. Bacchetta, R. Kundu, A. Metz and P.J. Mulders, "Estimate of the Collins fragmentation function in a chiral invariant approach", hep-ph/0201091, Phys. Rev. D65 (2002) 094021
65. K.A. Oganessyan, P.J. Mulders and E. DeSanctis, "Double-spin cosine phi asymmetry in semi-inclusive electroproduction", hep-ph/0201061, Phys. Lett. B 532 (2002) 87
66. D. Boer, P.J. Mulders and F. Pijlman, "Universality of T-odd effects in single spin and azimuthal asymmetries", hep-ph/0303034, Nucl. Phys. B 667 (2003) 201-241
67. A. Bacchetta, P.J. Mulders and F. Pijlman, "New observables in longitudinal single-spin asymmetries", hep-ph/0405154 Phys. Lett. B 595 (2004) 309-317
68. C.J. Bomhof, P.J. Mulders and F. Pijlman, "Gauge link structure in quark-quark correlators in hard processes", hep-ph/0406099 Phys. Lett. B 596 (2004) 277-286

69. A. Bacchetta, C.J. Bomhof, P.J. Mulders, F. Pijlman, "Single spin asymmetries in hadron-hadron collisions", [HEP-PH 0505268], Phys. Rev. D72:034030 (2005)
70. C.J. Bomhof, P.J. Mulders, F. Pijlman, "The construction of gauge-links in arbitrary hard processes", [HEP-PH 0601171], Eur. Phys. J. C47:147-162 (2006)
71. C.J. Bomhof, P.J. Mulders, "Gluonic pole cross sections and single spin asymmetries in hadron-hadron scattering", [HEP-PH 0609206], JHEP 02 (2007) 029
72. A. Bacchetta, M. Diehl, K. Goeke, A. Metz, P.J. Mulders and M. Schlegel, "Semi-inclusive deep inelastic scattering at small transverse momentum", [HEP-PH 0611265] JHEP 02 (2007) 093
73. C.J. Bomhof, P.J. Mulders, W. Vogelsang and F. Yuan, "Single-transverse spin asymmetry in dijet correlations at hadron colliders", BNL-NT-07-9 preprint, [HEP-PH 0701277], Phys. Rev. D75 (2007) 074019
74. A. Bacchetta, C. Bomhof, U. D'Alesio, P.J. Mulders and F. Murgia, "The Sivers single-spin asymmetry in photon-jet production", DESY-07-028 preprint, [HEP-PH 0703153], Phys. Rev. Lett. 99 (2007) 212002
75. D. Boer, C.J. Bomhof, D.S. Hwang and P.J. Mulders, "Spin asymmetries in jet-hyperon production at LHC", [HEP-PH 0709.1087], Phys. Lett. B 659 (2008) 127-136
76. C.J. Bomhof and P.J. Mulders, "Non-universality of transverse momentum dependent parton distribution functions", [HEP-PH 0709.1390], Nucl. Phys. B 795 (2008) 409-427
77. D. Boer, P.J. Mulders and C. Pisano, "T-odd effects in photon-jet production at the Tevatron" [HEP-PH 0712.0777], Phys. Lett. B 660 (2008) 360-368
78. A. Bacchetta, D. Boer, M. Diehl and P.J. Mulders, "Matches and mismatches in the description of semi-inclusive processes at low and high transverse momentum", [HEP-PH 0803.0227], JHEP 0808:023,2008
79. L. Gamberg, A. Mukherjee and P.J. Mulders, "Spectral analysis of gluonic pole matrix elements for fragmentation", [HEP-PH 0803.2632], Phys. Rev. D 77 (2008) 114026
80. D. Boer, P.J. Mulders and C. Pisano, "Dijet imbalance in hadronic collisions", [HEP-PH 0909.4652] Phys. Rev. D 80 (2009) 094017
81. T.C. Rogers and P.J. Mulders, "No Generalized TMD-Factorization in Hadro-Production of High Transverse Momentum Hadrons", e-Print: arXiv:1001.2977 [hep-ph], Phys. Rev. D81:094006,2010
82. L. Gamberg, A. Mukherjee and P.J. Mulders, "A model independent analysis of gluonic pole matrix elements", e-Print: arXiv:1010.4556 [hep-ph], submitted to Phys. Rev. Lett.
83. D. Boer, S.J. Brodsky, P.J. Mulders, and C. Pisano, "Direct probes of linearly polarized gluons inside unpolarized hadrons", SLAC-PUB-14294 (Nov 2010), e-Print: arXiv:1011.4225 [hep-ph], submitted to Phys. Rev. Lett.

## 2.2 publications in conference proceedings

1. A.T. Aerts, P.J. Mulders, and J.J. de Swart, University of Nijmegen "Multiquark states", University of Nijmegen report THEF-NYM-78.3 (1978), contributed paper submitted to the XIX. International Conference on High Energy Physics, Tokyo, 1978
2. P.J. Mulders, A.T. Aerts, and J.J. de Swart, "Exotic multiquark states", in Proceedings of the Meeting on Exotic Resonances, Hiroshima, Sept. 1978, ed. I. Endo et al., p. 70
3. P.J. Mulders, A.T. Aerts, and J.J. de Swart, "Baryon resonances as orbital and radial excitations of a bag", in Proceedings of the International Meeting on Frontiers in Physics, Singapore, 1978, p. 863
4. A.T. Aerts, P.J. Mulders, and J.J. de Swart, "Multiquark dibaryon resonances", Lecture Notes in Physics 82 (1978) 78: Proceedings of the 8. International Conference on Few Body Systems and Nuclear Forces, Graz, 1978, ed. H. Zingl et al.
5. J.J. de Swart, G. Austen, P.J. Mulders, and T.A. Rijken, "Quarks, the NN and NN interaction and nuclear physics", in Proceedings of the International Symposium on Few Particle Problems in Nuclear Physics, Dubna, June 1979
6. P.J. Mulders and J.J. de Swart, "Six quark dibaryon resonances", University of Nijmegen report THEF-NYM-80.11, contributed paper submitted to the XX. International Conference on High Energy Physics, Madison, July 1980
7. J.J. de Swart, P.J. Mulders, and L.J. Somers, "Multiquark baryons", in Proceedings of the IV. International Conference on Baryon Resonances, Toronto, July 1980, ed. N. Isgur, p. 405
8. P.J. Mulders, "The quark structure of the  $\Lambda(1405)$  resonance", in Proceedings of the Workshop on Nuclear and Particle Physics at Energies up to 31 GeV, Los Alamos, Jan. 1981, p. 388
9. J.J. de Swart, L.J. Somers, and P.J. Mulders, "Multiquark states", in Proceedings of the VI. International Seminar on High Energy Physics Problems (Multiquark Interactions and QCD), Dubna, Sept. 1981
10. P.J. Mulders, "P matrix analysis of nucleon-nucleon scattering", P.J. Mulders, Nucl. Phys. A416 (1984) 99c: Proceedings of the 10. International Conference on Few Body Problems in Physics, Karlsruhe, Aug. 1983
11. P.J. Mulders, "Solitons and chiral bag models", in Solitons in Nuclear and Elementary Particle Physics, Proceedings of the Lewes Workshop, June 1984, ed. A. Chodos, E. Hadjimichael, and C. Tze, World Scientific Publishing Co., Singapore (1984), p. 158
12. P.J. Mulders, "Hybrid bag models and solitons", Lecture notes in Physics 234 (1984) 184: Proceedings of the Workshop on Electron and Photon Interactions at Intermediate Energies, Bad Honnef, Oct. 1984, ed. D. Menze, W. Pfeil, and W.J. Schuille
13. P.J. Mulders, "The  $N\bar{N}$  interaction", in Proceedings of the 3. LEAR Workshop, Physics with Antiprotons at LEAR in the ACOL Era, Tignes, Jan. 1985, ed. U. Gastaldi et al., p. 177
14. P.J. Mulders, "The influence of nuclear structure on the nucleon", in Proceedings of the 4. Amsterdam Miniconference 'Nuclear Structure in the 1p shell', Amsterdam, Nov. 1985

15. P.J. Mulders, "Many quark effects in electron-nucleus scattering", in proceedings of the International Symposium on Weak and Electromagnetic Interactions in Nuclei, Heidelberg, July 1986, H.V. Klapdor, ed., Springer Verlag (Berlin, 1986), p. 410
16. P.J. Mulders, "Nuclear binding effects in inelastic electron scattering", NIKHEF report P-10 (1986), contributed paper presented at the International Nuclear Physics Conference, Harrogate, U.K., August 1986
17. P.J. Mulders and A.K. Kerman, "The structure functions of Quark Matter", contributed paper submitted to the International Conference on Particles and Fields, Kyoto, Japan, April 1987, NIKHEF-P-50 (1986)
18. P.J. Mulders, "Modifications of nucleons in nuclei in quasi-elastic electron-nucleus scattering", Nucl. Phys. A478 (1988) 49c: Proceedings of the XI. International Conference on Particles and Fields, Kyoto, Japan, April 1987, S. Homma ed.
19. P.J. Mulders, "Effective hadron degrees of freedom in nuclei", in Proceedings of the 3. Workshop on Perspectives in Nuclear Physics at Intermediate Energies, Trieste, May 1987, S. Boffi, C. Ciofi degli Atti and M.M. Giannini eds., World Scientific, Singapore, 1988, p. 243,
20. P.J. Mulders, "Consequences of the quark structure of hadrons in nuclei", Few-Body Systems, Suppl. 2 (1987) 256: Proceedings of the XI. European Conference on Few Body Physics, Fontevraud, Aug. 31 - Sep. 5, 1987
21. P.J. Mulders, "Consequences of the quark structure of nucleons in nuclei", in Proceedings of the 5th Amsterdam Miniconference on Non-nucleonic degrees of freedom in intermediate energy electron-nucleus scattering, Amsterdam, Nov. 19 - 20, 1987, p. 217
22. P.J. Mulders, "Quasi-free scattering off nucleons and quarks", in Proceedings of the Workshop on Electron-Nucleus scattering, Marciana Marina, Elba, June 6 - 15, 1988, A. Fabrocini et al., eds., World Scientific, 1989, p. 501
23. P.J. Mulders, "Quarks in Nuclei", Nucl. Phys. A497 (1989) 237c: Proceedings of the 1. European Workshop on Hadronic Physics in the 1990's with Multi-GeV Electrons, Seillac, France, June 27 - July 1, 1988, B. Frois, D. Goutte, P.J. Mulders and P.K.A. de Witt Huberts eds
24. A.E.L. Dieperink and P.J. Mulders, "Quark exchange effects in electron-nucleus scattering", Nucl. Phys. A497 (1989) 253c: Proceedings of the 1. European Workshop on Hadronic Physics in the 1990's with Multi-GeV Electrons, Seillac, France, June 27 - July 1, 1988, B. Frois, D. Goutte, P.J. Mulders and P.K.A. de Witt Huberts eds
25. P.J. Mulders and J. Kunz, "Strange Dibaryons in the Skyrme Model", Nucl. Phys. A497 (1989) 339c: in Proceedings of the 1. European Workshop on Hadronic Physics in the 1990's with Multi-GeV Electrons, Seillac, France, June 27 - July 1, 1988, B. Frois, D. Goutte, P.J. Mulders and P.K.A. de Witt Huberts eds
26. J. Kunz and P.J. Mulders, "Hyperons in the bound state approach to the Skyrme model: Magnetic moments of baryons", Z. Phys. C46 (1990) S25, in Proceedings of the Int. Meeting on Physics at KAON, Bad Honnef, June 7-9, 1989,

27. P.J. Mulders, "Quasi-free two nucleon knockout in electromagnetic processes", in proceedings of the Topical Workshop on Two Nucleon Emission Reactions, Elba, 19-23 September 1989,
28. P.J. Mulders, "Electron scattering and nucleon structure", in Proceedings of the 1989 Amsterdam Miniconference on Electron Scattering: Past and Future, 16-17 Nov. 1989, C.W. de Jager et al. eds (NIKHEF report), p. 149
29. J. Kunz and P.J. Mulders, "Electromagnetic Properties of Baryons", in Proceedings of the XXVIII International Winter Meeting on Nuclear Physics, Bormio (Italy), 22-26 Jan 1990, I. Iori ed. (University of Milano report), p. 33
30. P.J. Mulders, "From nucleons to quarks", Nucl. Phys. A532 (1991) 15c: in Proceedings of the Second European workshop on Hadronic Physics with electrons beyond 10 GeV, Dourdan, 8-12 October, 1990, edited by B. Frois and J.F. Mathiot,
31. P.J. Mulders and H. Meyer, "The role of spectator diquarks in deep inelastic structure functions", Lecture Notes in Physics 417 (1993) 157: in Proceedings of the International Workshop on Quark Cluster Dynamics, Bad Honnef, June 29-July 1, 1992, eds. K. Goeke, P. Kroll and H.R. Petry,
32. J. Levelt and P.J. Mulders, "Hadronization in semi-inclusive lepton-hadron scattering", NIKHEF report 92-P11 (September 1992) contributed paper submitted to the Workshop on a European Electron Facility, Mainz, Oct. 7-9, 1992
33. E.J.O. Gavin, J.H. Koch, J. Kunz and P.J. Mulders, "Form factors of strange particles", NIKHEF-92-P12 (September 1992), contributed paper submitted to the Workshop on a European Electron Facility, Mainz, Oct. 7-9, 1992
34. S. Scherer and P.J. Mulders, "Electromagnetic polarizabilities of the nucleon and the delta", in proc. of the International Workshop on Baryons as Skyrme solitons, Siegen, Sept. 28-30, 1992, KP-H147, 127.
35. J. Levelt and P.J. Mulders, "Deep inelastic semi-inclusive lepton-hadron scattering", NIKHEF report 93-P4, contributed paper submitted to the XIII. International Conference on Particles and Nuclei, Perugia (Italy), 28 June - 2 July 1993, Book of Abstracts, Vol.I, p. 5
36. J. Levelt and P.J. Mulders, "Quark correlation functions in semi-inclusive hard processes", in proceedings of the workshop on Exclusive Reactions at High Momentum Transfer, Elba (Italy), 24 - 26 June 1993, C. Carlson, P. Stoler and M. Taiuti eds., World Scientific 1994, p. 196
37. W.F.M. Spit et al., "Quark antisymmetrization in nuclei", Nucl. Phys. A553 (1993) 689c.
38. P.J. Mulders and J. Levelt, "Time reversal odd structure functions in semi-inclusive deep inelastic scattering", in Proceedings of the Workshop on CEBAF at higher energies, April 14-16, 1994 N. Isgur and P. Stoler eds, p. 371-378
39. B. Frois and P.J. Mulders, "Inclusive and semi-inclusive deep inelastic processes at CEBAF at higher energies", working group summary in Proceedings of the Workshop on CEBAF at higher energies, April 14-16, 1994, p. 309-314

40. R.D. Tangerman and P.J. Mulders, "Twist-three distributions and their appearance in the doubly-polarized Drell-Yan process", in Proceedings of the 2nd Meeting on Possible Measurements of Singly Polarized pp and pn Collisions at HERA, DESY-Zeuthen, Aug. 31 - Sep. 2, 1995, DESY-Zeuthen report 95-05, H. Böttcher and W.-D. Nowak (eds), p 69.
41. P.J. Mulders, "Transverse spin and transverse momenta in hard scattering processes", in Proceedings of the Workshop on the Prospects of Spin Physics at HERA, DESY-Zeuthen, Aug. 28 - 31, 1995, DESY report 95-200, J. Blümlein and W.-D. Nowak (eds), p. 208.
42. P.J. Mulders, "Opportunities in (semi-)inclusive deep inelastic scattering", in *Confinement Physics*, Proc. 1st ELFE Summer School, S.D. Bass and P.A.M. Guichon eds (Editions Frontières, 1996), p. 367
43. J. Rodrigues, A. Henneman and P.J. Mulders, "Modelling distribution functions and fragmentation functions", in *Confinement Physics*, Proc. 1st ELFE Summer School, S.D. Bass and P.A.M. Guichon eds (Editions Frontières, 1996), p. 373
44. W. melnitchouk and P.J. Mulders, "Inclusive and semi-inclusive scattering at ELFE" in *Confinement Physics*, Proc. 1st ELFE Summer School, S.D. Bass and P.A.M. Guichon eds (Editions Frontières, 1996), p. 363
45. R. Jakob, A. Kotzinian, P.J. Mulders and J. Rodrigues, "Quark transverse momentum in hard scattering processes", hep-ph/9610288, in proceedings of the 12. International Symposium on High Energy Spin Physics, Amsterdam, Sept. 10 - 14, 1996, eds C.W. de Jager et al., World Scientific (1997), p. 458-460
46. R. Jakob and P.J. Mulders, "Time reversal odd fragmentation functions" hep-ph/9610295, in proceedings of the 12. International Symposium on High Energy Spin Physics, Amsterdam, Sept. 10 - 14, 1996, eds C.W. de Jager et al., World Scientific (1997), p. 374-376
47. P.J. Mulders, "Prospects for spin physics in semi-inclusive processes", nucl-th/9611040, in proceedings of the workshop Prospects of hadron and quark physics with electromagnetic probes, Saint Malo, Sept 23-27, 1996, N. d'Hose et al. (eds), Nucl. Phys. A622 (1997) 239c-254c
48. R. Jakob and P.J. Mulders, "Time reversal odd fragmentation functions in polarized deep-inelastic leptonproduction", in proceedings of the workshop Prospects of hadron and quark physics with electromagnetic probes, Saint Malo, Sept 23-27, 1996, N. d'Hose et al. (eds), DAPNIA-SPhN report 96-35 (1996) 23-27
49. P.J. Mulders and J. Rodrigues, "Quark distribution functions in a diquark spectator model", NIKHEF 97-009, VUTH 97-2, hep-ph/9702280, to appear in the proceedings of the Second Workshop on Diquarks, Torino, Oct. 28-30, 1996
50. P.J. Mulders, "Spin-dependent structure functions in leptonproduction", NIKHEF 97-030, VUTH 97-13, hep-ph/9707339 to appear in the proceedings of the Conference on Perspectives in Hadronic Physics, Trieste, May 12-16 1997
51. R. Jakob, P.J. Mulders, and J. Rodrigues, "Distribution and fragmentation functions in a spectator model", NIKHEF 97-031, VUTH 97-14, hep-ph/9707340 to appear in the proceedings of the Conference on Perspectives in Hadronic Physics, Trieste, May 12-16 1997

52. D. Boer, P.J. Mulders and O.V. Teryaev, "Single spin asymmetries in the Drell-Yan process", NIKHEF 97-042, VUTH 97-16, in proceedings of the VII. Workshop on High Energy Spin Physics (Spin97), Dubna, July 7-12, 1997
53. D. Boer, P.J. Mulders and O.V. Teryaev, "Single spin asymmetries in the Drell-Yan process", hep-ph/9710525, in proceedings of the Symposium "Deep inelastic scattering off polarized targets: theory meets experiment", eds. J. Bluemlein et al., Sep. 1-5, 1997, Zeuthen, DESY report 97-200, p. 373-382
54. R. Jakob, P.J. Mulders and J. Rodrigues, "Estimates for non-leading distribution functions", hep-ph/9710496, in proceedings of the Symposium "Deep inelastic scattering off polarized targets: theory meets experiment", eds. J. Bluemlein et al., Sep. 1-5, 1997, Zeuthen, DESY report 97-200, p. 230-240
55. P.J. Mulders "Intrinsic transverse momentum in hard processes", hep-ph/9710498, in proceedings of the Symposium "Deep inelastic scattering off polarized targets: theory meets experiment", eds. J. Bluemlein et al., Sep. 1-5, 1997, Zeuthen, DESY report 97-200, p. 354-362
56. P.J. Mulders, "Single spin asymmetries in semi-inclusive deep inelastic scattering", hep-ph/9803230, in the proceedings of the Cracow Epiphany Conference on Spin Effects in Particle Physics, Jan 9-11, 1998, Cracow, Poland, K. Fialkowski and M. Jezabek, eds., Acta Phys. Pol. B29 (1998) 1225-1234.
57. D. Boer, R. Jakob and P.J. Mulders, "Spin physics with spin-0 mesons", hep-ph/9805410, in proceedings of 6<sup>th</sup> International Workshop on Deep Inelastic Scattering and QCD, Brussels (1998), G.H. Coremans and R. Roosen, eds., World Scientific 1998, p. 642-646.
58. P.J. Mulders and T. Sloan, "Spin Physics in deep inelastic Scattering", hep-ph/9806314, in proceedings of 6<sup>th</sup> International Workshop on Deep Inelastic Scattering and QCD, Brussels (1998), G.H. Coremans and R. Roosen, eds., World Scientific 1998, p. 838-852.
59. P.J. Mulders, "Beyond collinearity in the N(e,e'q) process", nucl-th/990314, in proceedings of the 10. Miniconference on Studies of Few-Body Systems with High Duty-Factor Electron Beams, Jan 6-7, 1999, NIKHEF, Amsterdam, eds H.P. Blok, E. Jans and G. van der Steenhoven, p. 59
60. M. Boglione and P.J. Mulders, "Estimates of T-odd distribution and fragmentation functions", in the Proceedings of the 7. International Workshop on Deep Inelastic Scattering and QCD (DIS99), Desy, Zeuthen, April 1999; hep-ph/9905535, Nucl. Phys. Proc. Suppl. B 79 (1999) 635,
61. P.J. Mulders, "Parton correlations in the proton; going beyond collinearity", in Proceedings of the Workshop on Physics with Polarized Electron Ion Collider (EPIC99), Bloomington, April 8 - 11 1999; L.C. Bland, J.T. Londergan and A.P. Szczepaniak, eds., World Scientific (2000), p. 35-49; hep-ph/9905563
62. P.J. Mulders and M. Boglione, "Perspectives in Polarized Leptoproduction", in Proceedings of the workshop on the Structure of the Nucleon (NUCLEON99), Frascati, June 7 - 9 1999; hep-ph/9907356, Nucl. Phys. Proc. Suppl. A666&667 (2000) 257c-266c
63. P.J. Mulders, "Structure of hadrons in hard scattering processes" hep-ph/9912493, in the Proceedings of the International Summer School on "Particle Production Spanning MeV

- and TeV Energies”, W. Kittel, P.J. Mulders and O. Scholten, eds., NATO Science Series C 554 (Kluwer, 2000), p. 295-324.
64. A. Bacchetta, M. Boglione, A. Henneman and P.J. Mulders, ”The full spin structure of quarks in the nucleon”, hep-ph/0005140, in the proceedings of the workshop on Nucleon Structure in the High x-Bjorken Region (HiX2000), Temple University, Philadelphia, PA, USA; March 30 - April 1, 2000
  65. P.J. Mulders, ”Current fragmentation in semiinclusive leptonproduction”, AIP Conf. Proc. 588 (2001) 75-88 [Proceedings of the Second Workshop on Physics with an Electron Polarized Light Ion Collider, Sept. 14-16, 2000, MIT, Cambridge; R.G. Milner, ed.
  66. M. Boglione and P.J. Mulders, ”Azimuthal and Single Spin asymmetries in deep inelastic scattering”, Czech. J. Phys. 51 (2001) A115-A120 [Proceedings of the International Workshop ’Symmetries and Spin, Praha-SPIN-2000’, Prague, July 17-22, 2000]
  67. A. Bacchetta and P.J. Mulders, ”Semi-inclusive vector meson production in DIS”, hep-ph/0006131, in the proceedings of DIS2000, Liverpool, April 25-30, 2000
  68. A. Bacchetta, M. Boglione, A. Henneman and P.J. Mulders, ”Bounds on distribution and fragmentation functions”, in the proceedings of DIS2000, Liverpool, April 25-30, 2000
  69. P.J. Mulders, ”Azimuthal asymmetries in semi-inclusive leptonproduction”, J. Phys. G 28 (2002) 801-809, in Proceedings of th Ringberg Workshop ’New Trends in HERA Physics 2001’, Ringberg Castle, Germany, June 17-22, 2001, hep-ph/0109038
  70. P.J. Mulders, ”Azimuthal and spin asymmetries in deep inelastic scattering”, Czech. J. Phys. 52 (2002), Suppl. C, C27-C54, lectures presented at the Advanced Study Institute on ’Symmetries and Spin (Praha-SPIN-2001)’, Prague, July 15-27, 2001
  71. K.A. Oganessyan, P.J. Mulders, E. DeSanctis and L.S. Asilyan, ”Kinematical contributions to the transverse asymmetry in semi-inclusive DIS”, Nucl. Phys. A711 (2002) 89c-92c, Proceedings of the European Workshop on the QCD structure of the Nucleon (QCD-N02), April 3-6, Ferrara, Italy
  72. A. Bacchetta, R. Kundu, A. Metz and P.J. Mulders, ”Estimate of the Collins function in a chiral invariant approach”, Acta Phys. Polon B 33 (2002) 3761-3766, Proceedings of the 10th International Workshop on Deep Inelastic Scattering (DIS2002), Cracow, Poland, 30 April- 4 May 2002, hep-ph/0206309
  73. M.J. Amarian et al., ”Spontaneously broken chiral symmetry and hard QCD phenomena”, hep-ph/0211291 summary document of workshop on spontaneously broken chiral symmetry and hard QCD phenomena, Bad Honnef, Germany, 15-19 July 2002
  74. P.J. Mulders and P. Jiménez Delgado, ”The uniqueness of the  $\Theta^+$  pentaquark”, hep-ph/0410074, Proc. of the 19. European Conference on Few-Body Problems in Physics, Groningen, Netherlands, 23-27 Aug. 2004, AIP Conf. Proc. 768:191-196 (2005)
  75. P.J. Mulders, ”Polarized structure functions”, Prog. Part. Nucl. Phys. 55:243-269 (2005)
  76. P.J. Mulders, C.J. Bomhof, F. Pijlman, ”Universality of single spin asymmetries in hard processes”, Proceedings of the 14th International Workshop on Deep Inelastic Scattering, DIS2006, Tsukubu, Japan, 20-24 April 2006, M. Kuze, K. Nagano and K. Tokushuku eds, World Scientific 2007 [HEP-PH 0607210], p. 707-711

77. C.J. Bomhof, P.J. Mulders. "Sivers Effect Asymmetries in Hadronic Collisions", [hep-ph/0611297], AIP Conf. Proc. 915 (2007) 563-566, Proceedings of the 17th International Spin Physics Symposium (SPIN2006), Kyoto, Japan, Oct. 2-7, 2006
78. C.J. Bomhof, P.J. Mulders. "The role of gauge invariance in single-spin asymmetries", [hep-ph/0706.4017], in Proceedings of the International Workshop on Deep Inelastic Scattering (DIS2007), Muenchen, Germany, Apr. 14-18, 2007, p. 627-630
79. P.J. Mulders, "Non-collinearity in high energy processes", Pramana J. Phys. 72 (2008) 1 - 13, ArXiv:0806.1134 [hep-ph], Proceedings of the Xth Workshop on High Energy Physics Phenomenology (WHEPPX), Chennai (India), January 2-13, 2008.
80. P.J. Mulders, "Single spin asymmetries and gluonic pole matrix elements", ArXiv:0806.4503 [hep-ph], Proc. of XVI Int. Workshop on Deep-Inelastic Scattering and Related Topics, London, England, April 2008, <http://dx.doi.org/10.3360/dis.2008.221>
81. C. Pisano, D. Boer, P.J. Mulders, "T-odd Effects in Photon-Jet Production at the Tevatron", arXiv:0807.0545 [hep-ph], Proc. of XVI Int. Workshop on Deep-Inelastic Scattering and Related Topics, London, England, April 2008, <http://dx.doi.org/10.3360/dis.2008.222>
82. L. Gamberg, A. Mukherjee and P.J. Mulders, "Spectral Analysis of Gluonic Pole Matrix Elements", arXiv:0807.1138 [hep-ph], Proc. of XVI Int. Workshop on Deep-Inelastic Scattering and Related Topics, London, England, April 2008, <http://dx.doi.org/10.3360/dis.2008.226>
83. A. Mukherjee, L. Gamberg and P.J. Mulders, "Gluonic Pole Matrix Elements in Spectator Models", arXiv:0808.2374 [hep-ph], in Proceedings of 2nd International Workshop on Transverse Polarization Phenomena in Hard Processes, Ferrara, Italy, 28-31 May 2008
84. A. Bacchetta, D. Boer, M. Diehl and P.J. Mulders, "DIS at low and high transverse momentum: matches and mismatches", Proc. of XVI Int. Workshop on Deep-Inelastic Scattering and Related Topics, London, England, April 2008, <http://dx.doi.org/10.3360/dis.2008.225>
85. A. Bacchetta, D. Boer, M. Diehl and P.J. Mulders, "Semi-inclusive processes at low and high transverse momentum" arXiv:0809.0648 [hep-ph] in Proceedings of 2nd International Workshop on Transverse Polarization Phenomena in Hard Processes, Ferrara, Italy, 28-31 May 2008
86. P.J. Mulders, "Time-reversal-odd phenomena in QCD" ArXiv:0810.3772 [hep-ph], in Proceedings of LC2008, Mulhouse, July 2008
87. Asmita Mukherjee et al., Working group report: Quantum Chromodynamics sub-group, Pramana 72:277-283,2009.
88. L. Gamberg, A. Mukherjee and P.J. Mulders, "Universality and gluonic pole matrix elements", AIP Conf. Proc. 1149:427-432, 2009

## 2.3 Other publications (Internal reports, lectures, magazines, ...)

1. P.J. Mulders, "Magnetic monopoles in nonabelian gauge theories", Thesis for 'doctoraal examen', University of Nijmegen, April 1976
2. A.T. Aerts and P.J. Mulders, "Introduction to the MIT bag model", University of Nijmegen report THEF-NYM-77.2 (1977)
3. P.J. Mulders, "Multiquark States in the Bag Model", Ph.D. thesis, University of Nijmegen, May 1980
4. P.J. Mulders, "A comment on S matrix parametrizations in NN-scattering", Los Alamos National Laboratory (internal) report LA-8879MS (1981)
5. P.J. Mulders, "Models for the structure of hadrons: bags, solitons", in *New Vistas in Nuclear Dynamics*, Proceedings of the International Summer School, Dronten, Aug. 1985, P.J. Brussaard and J.H. Koch eds, Plenum, New York (1986), p. 313
6. B. Frois, D. Goutte, P.J. Mulders and P.K.A. de Witt Huberts eds, *Nucl. Phys. A497* (1989): Proceedings of the 1. European Workshop on Hadronic Physics in the 1990's with Multi-GeV Electrons, Seillac, France, June 27 - July 1, 1988
7. J. Koch en P. Mulders, "Elementaire Deeltjes", in "Van Quantum tot Quark", G. 't Hooft, ed., Stichting Teleac, 1989
8. P.J.G. Mulders, "De Theorie voor Alles of Niets", Inaugurele rede bij Vrije Universiteit, June 20, 1990 [ISBN 3-8142-1040-9]
9. P. Mulders en G. van der Steenhoven, "De Nobelprijs Natuurkunde 1990", *Intermediair* 26 (1990), no. 49, p. 41.
10. P.J. Mulders, "The structure of hadrons at low and high energies", lectures presented at the Int. Summer School on Hadrons and Hadronic Matter, August 5 - 18, 1990, Dronten, the Netherlands, O. Scholten and J.H. Koch, eds., World Scientific 1991, p. 249
11. W.F.M. Spit, A.G.M. van Hees, P.J. Brussaard and P.J. Mulders, "Quark exchange and nuclear form factors. II. Magnetic form factors", University of Utrecht preprint, dec. 1991 (unpublished).
12. P.J. Mulders, "Inclusive electron-nucleus scattering and the structure of nucleons", in *Modern topics in Electron Scattering*, B. Frois and I. Sick, eds., World Scientific (1991), p. 57
13. P.J.G. Mulders, "Spinpuzzel. De rol van de tollende quarks", *Natuur en Techniek* 59 (1991) 448
14. P.J. Mulders, "Quantum Chromodynamics and deep inelastic scattering", Lectures presented at the 1992 Belgian-Dutch-German School of Particle Physics, Retie (B), Aug. 31 - Sept 11, 1992, NIKHEF report NIKHEF-92-P10 (September 1992).
15. J. Levelt and P.J. Mulders, "Twist three contributions in unpolarized lepton production", NIKHEF-93-P7 (June 1993), unpublished

16. P.J. Mulders, "De quark- en gluonstructuur van hadronen", Nederlands Tijdschrift voor Natuurkunde 59 (1993) 194-198.
17. C.W. de Jager, T.J. Ketel, P.J. Mulders, J.E.J. Oberski and M. Oskam-Tamboezer, Proceedings of the 12. International Symposium on High-Energy Spin Physics, Sept 10-14, 1996, Amsterdam, the Netherlands, World Scientific (1997).
18. G.I. Poulis and P.J. Mulders, "On the Dirac quantization condition", NIKHEF-95-014, hep-ph/9504254
19. C. Amsler, T. Bressani, F.E. Close, E. De Sanctis, B. Frois, D. von Harrach, F. Kunne, J.M. Laget, V. Metag, P.J. Mulders and D.O. Riska, "Perspectives in hadron and quark dynamics", document for the 1997 NuPECC report on "Highlights and perspectives in Nuclear Physics", Nucl. Phys. A622 (1997), 315c-354c
20. P.J. Mulders, "De implicaties van neutrino-oscillaties", Nederlands Tijdschrift voor Natuurkunde 64 (1998) 199-201.
21. P.J. Mulders en J. Engelen, "Het vonkende vacuum", Nederlands Tijdschrift voor Natuurkunde 65 (1999) 142-145.
22. The TESLA-N Study Group; M. Anselmino et al., "Electron Scattering with Polarized Targets at TESLA", hep-ph/0011299, DESY 00-160, TPR-00-20
23. P.J. Mulders, *De nieuwe 'nieuwe wereld'*, Nederlands Tijdschrift voor Natuurkunde 66 (2000) 2
24. P.J. Mulders, *Toelichting bij de Nobellezingen*, Nederlands Tijdschrift voor Natuurkunde 66 (2000) 247
25. K.J.F. Gaemers en P.J. Mulders, *De zon, het neutrino en zijn massa*, Nederlands Tijdschrift voor Natuurkunde 68 (2002) 374-375
26. P. Collins and P.J. Mulders, *High-energy conference highlights precision results*, CERN Courier 42, no. 9 (2002) 15-18
27. P.J. Mulders *Pentaquarks: een nieuwe vorm van materie?*, Nederlands Tijdschrift voor Natuurkunde 69 (2003) 384
28. P.J. Mulders, "Polarized structure functions", Proc. of the International School of Nuclear Physics: Lepton scattering and the structure of hadrons and nuclei, Erice (Italy), 16-24 Sept. 2004
29. P.J. Mulders, "Hadron structure: the physics program of HAPNET", Proc. of the 10. Conference on Problems in Theoretical Nuclear Physics, Cortona (Italy), 6-9 Oct. 2004, p. 399-413
30. H.N. de Lang en P.J. Mulders, "Bedwingers van de Oneindigheid" (Ken uw Klassieken), Nederlands Tijdschrift voor Natuurkunde 71 (2005) 358
31. Piet Mulders, "Hoe leeg is het heelal?", Vakidoot, Jrg 05-06, no 6, p. 3-6 (2006)

32. A. Afanasev et al., "Transversity and transverse spin in nucleon structure through SIDIS at Jefferson Lab", Working group summary at the Workshop on Inclusive and Semi-inclusive Spin Physics with High Luminosity and Large Acceptance at 11 GeV, TJNAF, Dec 13-14, 2006, [hep-ph/0703288], JLAB-PHY-07-620 (2007)
33. P.J. Mulders, "Spin Structure Functions", Chapter in *Electromagnetic Interactions and Hadronic Structure*, F.E. Close, A. Donnachie and G. Shaw (eds), Cambridge University Press 2007 (ISBN 978-0-521-84420-8), p. 271-314
34. Piet Mulders, "Van atoom tot kosmos; wie het kleine niet eert ...", ISBN 978-90-812928-1-8, Maart 2008
35. Daniël Boer en Piet Mulders, "Het vacuüm als supergeleider; Nobelprijs natuurkunde 2008 - deel 1, Nederlands Tijdschrift voor Natuurkunde 74 (2008) 408-411
36. Herman de Lang, Vincent Icke e.a., "Canon van de natuurkunde", Veen Magazines 2009 (ISBN 978-9085712350), Hfdst. 64 & 84.

### 3 TALKS (since 1990)

#### Talks in 1990

- 90-05-22  
*Quasi-free Multi-nucleon Production*, Workshop on Photo- and Electroproduction of Multi-particle final States, Bad Honnef, May 22-23, 1990
- 90-06-20  
*De theorie voor alles of niets*, Inaugurele rede bij VU, Amsterdam
- 90-11-22  
*De subatomaire wereld belicht met elektronen*, AIK Symposium VU, Amsterdam

#### Talks in 1991

- 91-02-06  
*De Nobelprijs 1990, J.I. Friedman, H.W. Kendall en R.E. Taylor*, Academisch Genootschap Eindhoven.
- 91-03-20  
*Nucleons and QCD*, account of working group 'Hadronic physics with electrons' at the Ruthin Castle workshop,
- 91-05-08  
*Spin and flavor structure of the nucleon*, Theoretisch seminarium, K.U. Nijmegen
- 91-07-23  
*Where is the isospin of the proton?*, Gordon conference on "QCD in Nuclear Physics", Tilton, NH, USA
- 91-10-06  
*Reis naar de microwereld van quark en lepton*, NIKHEF open dag
- 91-11-22  
*QCD corrections and  $Q^2$  dependence in deep inelastic scattering*, OIO-dag Kernfysica, NIKHEF Amsterdam.
- 91-12-18  
*Deep inelastic scattering and the flavor and spin structure of the nucleon*, University of Mainz.

#### Talks in 1992

- 92-02-26  
*Hyperon properties in Skyrme and Bag Models*, invited group report presentation of work of J. Kunz, P.J.M. and G.A. Miller, DPG Spring Meeting 1992 (Nuclear Physics), Salzburg, Feb. 24 - 28, 1992.
- 92-03-26  
*The convolution approach in deep inelastic scattering*, colloquium KFA Juelich (Germany)

- 92-04-15  
*De subatomaire wereld*, 3e jaars studenten seminarium, KU Nijmegen
- 92-06-17  
*Deep inelastic scattering and the structure of hadrons*, Graduirtenkolleg Erlangen-Regensburg, University of Regensburg (Germany)
- 92-06-29  
*The role of spectator diquarks in deep inelastic structure functions*, Invited talk at the Workshop on "Quark cluster dynamics", Jun. 29 - Jul. 1, Bad Honnef (Germany)
- 92-09  
*Quantum chromodynamics and deep inelastic scattering*, Lectures at the Joint Belgian-Dutch-German (Aachen) school of particle physics, Sept. 7-11, Retie (Belgie),
- 92-09-29  
*Electromagnetic polarizabilities of the nucleon and the delta*, Invited talk at the International Workshop on Baryons as Skyrme solitons, Siegen, Sept. 28-30, 1992
- 92-10-07  
*Nonperturbative QCD*, invited talk at the "Workshop on a European Electron Facility", Mainz, Oct. 7 - 9, 1992

## Talks in 1993

- 93-06-25  
*Quark correlation functions in semi-inclusive hard processes*, invited talk at the workshop on Exclusive Reactions at High Momentum Transfer, Elba (Italy), 24 - 26 June 1993.
- 93-08-05  
*Intrinsic transverse momenta in deep inelastic processes*, invited talk at the workshop on Perspectives in High Energy Interaction Physics at High Energy Facilities, Fermilab, 4-11 Aug 1993.
- 93-09-22  
*Twist two and twist three contributions in electroproduction*, invited talk at the HERMES workshop, Desy, 21 - 23 Sep 1993.
- 93-12  
Lectures given at the AIO/OIO school in Nuclear Physics, Logica (Enschede, the Netherlands), 13 - 17 Dec. 1993

## Talks in 1994

- 94-02-11  
*Probing quark and gluon structure in hard processes*, University of Oldenburg, Oldenburg, Duitsland
- 94-04-17  
*Time reversal odd structure functions in semi-inclusive scattering of polarized leptons from unpolarized hadrons*, invited talk at the workshop on CEBAF at higher energies, CEBAF, USA, 13-17 April 1994.

- 94-04-22  
*Probing quark and gluon structure in hard scattering processes*, invited talk at the workshop on Parton Structure of Matter, ECT\*, Trento, 11 - 23 April 1994.
- 94-04-29  
*Intrinsic transverse momenta of quarks in hadrons as probed in hard processes*, University of Wuppertal.
- 94-04-01  
*Probing the structure of hadrons in hard scattering processes*, University of Mainz
- 94-07-11  
*Evolution of the spin of the proton*, talk given at the Summer Institute on Hadron Structure and QCD in hard processes, Trento, July 3 - August 13, 1994.
- 94-07-19  
*Intrinsic quark transverse momenta in hard processes*, talk given at the Summer Institute on Hadron Structure and QCD in hard processes, Trento, July 3 - August 13, 1994.
- 94-10-14  
*Wie het kleine niet eert, ....*, VWO-dag, Vrije Universiteit, Amsterdam
- 94-10-27  
*What's going on inside the proton*, colloquium, RU, Groningen
- 94-10-28  
*Hard scattering processes and the structure of hadrons*, contribution at the NNV fall meeting, Petten, Oct. 28, 1994

## Talks in 1995

- 95-01-16  
*Higher twist and transverse polarization*, invited talk at the Workshop on Physics at HERMES, DESY, Hamburg.
- 95-07-27  
*Opportunities in Semi-inclusive Deep Inelastic Scattering*, invited talk at the First ELFE School on Confinement Physics, Cambridge, July 22 - 28, 1995.
- 95-08-30  
*Transverse spin and transverse momenta in hard scattering processes*, invited talk at the Workshop on the Prospects of Spin Physics at HERA, DESY Zeuthen, August 28-31, 1995.
- 95-09-28  
*Hard scattering processes and the structure of hadrons*, colloquium, University of Genova (Italy).
- 95-10-03  
*Theoretical Aspects of Semi-inclusive Leptoproduction*, invited talk at the Workshop on the Role of the Nuclear Medium in High-Energy Reactions, ECT Trento (Italy), Sept 25 - Oct 6, 1995.

- 95-12-07  
*Longitudinal quark polarization in a transversely polarized nucleon*, invited talk at the meeting of the DESY working group on Polarization.

## Talks in 1996

- 96-03-01  
*New structure functions in polarized hard processes*, invited talk presented at the deep-inelastic scattering working group meeting on 'long range perspectives of gsi', GSI (darmstadt)
- 96-03-29  
*Longitudinal quark polarization in a transversely polarized nucleon*, invited talk presented at the workshop on Quark and gluon Structure of Nucleons and Nuclei, Institute for Nuclear Theory, University of Washington, Seattle.
- 96-05-31  
*Transverse momenta in hard processes from an operator viewpoint*, invited talk at Landelijk Seminarium Theoretical Intermediate Energy Physics, K.U. Nijmegen.
- 96-06-04  
*Transverse momentum of quarks in hard scattering processes*, invited talk presented at the workshop on Deep inelastic Scattering with polarization and High energy asymptotics of structure functions, Leipzig, June 3 - 14, 1996.
- 96-09-10  
*Transverse momentum of quarks in hard scattering processes*, contributed talk at the 12. International Symposium on High Energy Spin Physics, Amsterdam, Sept. 10 - 14, 1996.
- 96-09-26  
*Prospects for spin physics in semi-inclusive processes*, Invited talk presented at the 2. ELFE workshop, St. Malo, Sept. 23 - 27, 1996
- 96-10-11  
*Physical significance of new structure functions in semi-inclusive processes*, invited talk presented at the deep-inelastic scattering working group meeting on 'long range perspectives of gsi', GSI (darmstadt)
- 96-12-11  
*The virtual reality of spinning quarks and pulling gluons*, Theoretical seminar, Free University, Amsterdam

## Talks in 1997

- 97-02-14  
*The virtual reality of spinning quarks and pulling gluons*, invited seminar, University of Torino, Torino, Italy
- 97-03-04  
*Comparison of options: semi-inclusive reactions*, round table at the Joint DESY/GSI/NuPECC Workshop, Seeheim, March 3-4 1997

- 97-05-14  
*Spin-dependent structure functions in semi-inclusive scattering*, invited talk at the Conference on Perspectives in Hadronic Physics, Trieste, May 12-16 1997
- 97-06-05  
*Interacting quarks and gluons in the proton*, invited talk at the Symposium "Trends in theory", organised by the Dutch Research School in Theoretical Physics, June 5-6, 1997, Dalfsen
- 97-09-04  
*Intrinsic transverse momentum in hard processes*, invited talk at the Symposium "Deep inelastic scattering off polarized targets: theory meets experiment", Sep. 1-5, 1997, Zeuthen
- 97-09-12  
*Semi-inclusive hard scattering processes*, invited review talk at the Nordita Workshop on Exclusive Processes, September 11-13, 1997
- 97-11-28  
*Time-reversal odd fragmentation functions in hard processes* invited seminar, Max Planck Institut, Heidelberg, Germany.

## Talks in 1998

- 98-01-09  
*Single spin asymmetries in semi-inclusive deep inelastic scattering*, invited talk at the Cracow Epiphany Conference on Spin Effects in Particle Physics, Jan 9-11, 1998, Cracow, Poland.
- 98-02-13  
*Wie het kleine niet eert ...*, voordracht voor de Vereniging Amateursterenkunde Zuid-Drenthe, Hogeveen.
- 98-02-13  
*Wie het kleine niet eert ...*, voordracht voor de NVWS-Delft, Delft.
- 98-04-08  
*Spin physics in deep inelastic scattering: theoretical aspects*, rapporteur talk at the 6th International Workshop on Deep Inelastic Scattering and QCD, April 4 - 8, 1998, Brussels, Belgium.
- 98-04-23  
*Wie het kleine niet eert ...*, voordracht voor de Weer- en Sterrenkundige Kring Zaanstreek, Oostzaan.
- 98-06-15  
*Transverse momenta of partons in hadron-hadron collisions*, invited seminar, University of Utrecht.
- 98-06-29  
*Transverse momenta of partons in hard processes*, invited talk at the workshop on Hard Scattering Phenomena, June 29 - July 10, Regensburg, Germany

- 98-09-02  
*Neutrino oscillations*, colloquium, Vrije Universiteit Amsterdam
- 98-11-02  
*Wie het kleine niet eert . . .*, voordracht voor de Vereniging voor Sterrenkunde, Roermond.
- 98-11-07  
*Semi-inclusive lepton-hadron scattering*, invited talk at the workshop on Nuclear and Particle Physics with CEBAF at Jefferson Lab, Nov. 3 - 10, Dubrovnik, Croatia
- 98-12-08  
*Wie het kleine niet eert . . .*, voordracht voor het Natuurkundig Gezelschap, Utrecht
- 98-12-10  
*Wie het kleine niet eert . . .*, voordracht voor Haarlemse Weer en Sterrenkundige Kring, Haarlem
- 98-12-15  
*Intrinsic transverse momentum in hard processes*, invited talk at the workshop on structure functions and hadronic wave functions, Dec. 14-18, Bad Honnef, Germany

## Talks in 1999

- 99-01-06  
*Beyond collinearity in the  $N(e, e'q)$  process*, invited talk at the 10th Miniconference on Studies of Few-Body Systems with High Duty-Factor Electron Beams, Jan 6 and 7, 1999, NIKHEF, Amsterdam
- 99-02-18  
*Neutrino oscillations*, colloquium, RU, Groningen
- 99-03-09  
*Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkundige Kring, Enschede
- 99-04-12  
*Parton correlations in the proton. Going beyond collinearity* invited talk at the Workshop on Physics with Electron Polarized Ion Collider (EPIC99), IUCF, Bloomington, April 8-11, 1999
- 99-06-09  
*Perspectives for polarized leptonproduction*, invited talk at the Workshop on the structure of the nucleon (NUCLEON99), Frascati National Laboratory, June 7-9 1999
- 99-08-14  
*The structure of hadrons in hard scattering processes*, lectures at the International Summer School on Particle production spanning MeV and TeV energies (NIJMEGEN99), Jonkerbosch Conference Center, Nijmegen, August 8-20 1999
- 99-09-10  
*New possibilities in leptonproduction* invited talk at Bosen 1999, Sep. 6 - 10, 1999, Bosen, Germany

- 99-09-13  
*Structure of hadrons measured in hard processes*, invited talk at the International workshop on hadron physics; effective theories of low-energy QCD, Sep. 10 - 15, 1999, Coimbra, Portugal
- 99-10-29  
*The many faces of the nucleon* Invited talk at the Fall Meeting of the Nuclear and Particle Physics sections of the Dutch Physical Society (NNV), Petten, the Netherlands
- 99-11-26  
*Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkundige Kring, Alkmaar

## Talks in 2000

- 00-01-27  
*Bounds on transverse momentum dependent distribution and fragmentation functions*, 2nd Workshop on eN@Tesla, Erlangen, Germany
- 00-02-26  
*Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkundige Kring, Leeuwarden
- 00-03-10  
*Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkundige Kring, Den Helder
- 00-03-31  
*The full spin structure of quarks in the nucleon*, invited talk at the workshop on Nucleon Structure in the High x-Bjorken Region (HiX2000), Temple University, Philadelphia, PA, USA
- 00-04-04  
*Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkundige Kring, Appingedam
- 00-07-25  
*Intrinsic transverse momenta of partons in hard processes*, talk at the workshop on polarized and unpolarized deep inelastic lepton-hadron scattering, July 17-28, Leiden
- 00-09-15  
*Current fragmentation in semiinclusive lepton production*, 2nd Workshop on Physics with EPIC (EPIC2000), Cambridge, MA, USA
- 00-09-29  
*Wie het kleine niet eert . . .*, voordracht bij de 2e dies van de Faculteit Exacte Wetenschappen, VU, Amsterdam
- 00-11-15  
*The virtual reality of quarks and gluons*, Institute for Theoretical Physics, Univ. Utrecht
- 00-11-16 *Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkunde Kring, Hilversum

## Talks in 2001

- 01-01-15/19  
*Quantum chromodynamics and hadron structure*, lectures given at the DRSTP Graduate School, Jonkerbosch, Nijmegen
- 01-02-14  
*Wie het kleine niet eert . . .*, voordracht voor Weer en Sterrenkundige Kring, Zwolle
- 01-04-28  
*Theoretical aspects of azimuthal and transverse spin asymmetries*, 9th International Workshop on Deep Inelastic Scattering (DIS2001), Bologna, Italy, April 27-May 1, 2001
- 01-06-21  
*Azimuthal asymmetries in semi-inclusive production* invited talk at the Ringberg Workshop 'New Trends in HERA Physics 2001', June 17 - 22, 2001
- 01-07-12  
*Transverse spin and transverse momentum: a twist analysis*, Topical Workshop on Transverse Spin Physics (SPIN01), Zeuthen, Germany, July 9 - 11, 2001
- 01-07-20 *Spin and azimuthal asymmetries in semi-inclusive lepton production* Spin2001, Praha
- 01-09-19  
*Wie het kleine niet eert . . .*, voordracht voor VWS Triangulum, Apeldoorn
- 01-11-21  
*Wie het kleine niet eert . . .*, voordracht voor Volkssterrenwacht Amsterdam

## Talks in 2002

- 02-02-21 *Wie het kleine niet eert . . .*, voordracht voor Volkssterrenwacht Haarlem
- 02-04-12 *The elusive neutrino*, NNV voorjaarsvergadering, Groningen
- 02-07-04 *Single spin asymmetries in deep inelastic lepton production* University of Dortmund, Germany
- 02-07-16 *The soft physics responsible for single spin asymmetries in hard reactions*, Workshop on Spontaneously broken chiral symmetry and hard QCD phenomena, July 15-19 2002, Bad Honnef, Germany
- 02-08-05 *Single spin asymmetries in hard scattering processes*, Lightcone 2002 workshop on hard processes and RHIC physics, Aug. 5-9 2002, Los Alamos, USA
- 02-10-20  
*Single spin asymmetries in high-energy scattering*, Imperial College, University of London, London
- 02-12-11  
*The deep structure of the proton*, University of Nijmegen
- 02-12-23  
*Wie het kleine niet eert . . .*, voordracht voor Volkssterrenwacht Putten

## Talks in 2003

- 03-03-27  
*Structure functions are parton densities*, invited talk at the 1st Urbana Mini-Workshop on single Spin Asymmetries, UIUC, Urbana, 27-28 March 2003
- 03-05-06  
*Wie het kleine niet eert . . .*, voordracht NVWS Hoorn
- 03-05-19  
*The QCD structure of the Nucleon*, two lectures at the VIII Frascati Spring School "Bruno Touschek" in Nuclear, subnuclear and Astroparticle physics, May 19-23, 2003.
- 03-11-28  
*Het ongrijpbare neutrino*, voordracht NVWS Venlo

## Talks in 2004

- 04-03-02  
*Accessing transversity*, invited talk at the Workshop on Hadron Structure and Spectroscopy, Paris, 1-3 March 2004
- 04-03-25  
*Het ongrijpbare neutrino*, voordracht EWSK Eindhoven
- 04-06-17  
*Theoretical developments in transversity*, invited talk at the workshop on Transversity: New Developments in Nucleon Spin Structure, ECT, Trento, 14-18 June 2004
- 04-08-25  
*Uniqueness of the  $\Theta^+$  pentaquark*, invited talk at the 19. European Conference on Few-Body Problems in Physics, Groningen (Netherlands), 23-27 August 2004
- 04-09-20  
*Polarized structure functions*, Invited lecture at the International School of Nuclear Physics: Lepton scattering and the structure of hadrons and nuclei, Erice (Italy), 16-24 Sept. 2004
- 04-10-09  
*Hadron Structure*, invited talk at the 10. Conference on Problems in Theoretical Nuclear Physics, Cortona (Italy), 6-9 Oct. 2004

## Talks in 2005

- 05-02-10  
*The Standard Model of Particle Physics*, seminar Vrije Universiteit
- 05-05-10  
*Noncollinear parton structure in hard processes*, Workshop on The Partonic Structure of Hadrons, Trento (Italy), 9-14 May 2005
- 05-07-04 through 05-07-09  
*Spin structure functions*, Lecture series given at the ECT school "Hadron Physics", May-August 2005.

- 05-09-24 through 05-09-27  
*The Standard Model of Particle Physics*, Lectures given at the Graduate School Subatomic Physics, Texel, The Netherlands, September 2005.
- 05-11-16  
*Het ongrijpbare neutrino*, voordracht NVWS Galaxis, Den Bosch

## Talks in 2006

- 06-04-05  
*Hoe vinden elementaire deeltjes hun weg*, voordracht in kader van het scholierenprogramma 'Op de Hoogte', Den Haag
- 06-04-22 *Universality of single spin asymmetries in hard processes*, DIS2006, Tsukuba, Japan
- *Single spin asymmetries in  $p\bar{p}$  scattering* Workshop on Observables in  $p\bar{p}$  Interactions and their Relevance to QCD
- 06-10-04  
*The Nobel prize in Physics 2006*, Colloquium Vrije Universiteit, Amsterdam
- 06-10-12  
*Hoe vinden elementaire deeltjes hun weg*, voordracht in kader van het scholierenprogramma 'Op de Hoogte', Den Haag
- 06-11-09 *Time reversal odd phenomena in Quantum Chromodynamics* Universiteit Oldenburg, Duitsland
- 06-11-23  
*General remarks on Angular Momentum* INFN, Trieste, Italy
- 06-12-14  
*Theoretical and Experimental Challenges of Semi-Inclusive Deep Inelastic Scattering*, Workshop on Inclusive and Semi-Inclusive Spin Physics with High Luminosity and Large Acceptance at 11 GeV, Dec. 13-14, 2006, Jefferson Lab, USA

## Talks in 2007

- 07-03-19  
*Het ongrijpbare neutrino*, Natuurkundig Genootschap, Rotterdam
- 07-06-12  
*Appearance of single spin asymmetries in hard scattering processes*, Workshop on Transverse Momentum, Spin and Position Distributions of Partons in Hadrons, Trento, 11-15 June 2007
- 07-06-28  
*Transverse Spin Physics*, Lectures (remote) for RIKEN Spinfest (Tsukuba, Japan), 25-29 June 2007

## Talks in 2008

- 08-01-05 *Non-collinearity in high energy processes*, Invited talk at the Xth Workshop on High Energy Physics Phenomenology (WHEPPX), Chennai (India), January 2-13, 2008.
- 08-04-08  
*Single spin asymmetries and gluonic pole matrix elements*, DIS2008, April 7-11, London (UK)
- 08-04-11  
*T-odd phenomena in QCD*, National Seminar Theoretical High Energy Physics, NIKHEF Amsterdam
- 08-06-10  
*Nonuniversality of Transverse Momentum Dependent Parton Distribution Functions*, Workshop on GPD's and Transversity, June 9-13, 2008, Trento (Italy)
- 08-07-01  
*Universality of T-odd phenomena*, Transversity workshop, June 30 - July 4, 2008, Beijing (China)
- 08-07-08  
*T-odd phenomena in QCD*, LC2008, July 7-11, 2008, Mulhouse (France)
- 08-10-30  
*Link dependence in TMD distribution and fragmentation functions*, Workshop on Strangeness Polarization in semi-inclusive and exclusive Lambda production, October 27-31, 2008, Trento (Italy)
- 08-12-15  
*T-odd phenomena in QCD scattering processes*, NIKHEF Year Meeting, December 15, 2008, Amsterdam

## Talks in 2009

- 2009-06-23  
*Transverse momentum in hard processes*, Workshop on Transverse Partonic Structure of Hadrons, June 21-26, 2009, Yerevan Armenia
- 2009-09-16  
*Universality of transverse momentum dependent distribution functions*, Workshop on Three-dimensional parton structure of the nucleon encoded in GPDs and TMDs, September 14-18, 2009, INT Seattle
- 2009-11-25 *Het standaardmodel van de deeltjesfysica en de grenzen daarvan*, Symposium 'At the right place at the right time', Universiteit Twente

## Talks in 2010

- 2010-01-03  
*Transverse momentum dependent distribution functions at high energies*, 3th International Workshop on High Energy Physics in the LHC Era, January 4-8, 2010, Valparaiso, Chile
- 2010-03-25  
*Veranderende concepten over materie, ruimte en tijd*, ITS Regionale bijeenkomst, VU, Amsterdam, 25 maart 2010
- 2010-06-08  
*Transverse momentum dependent PDFs in high energy processes - Theory Overview and Applications*, AGS-RHIC User's meeting, Brookhaven National Laboratory, June 7-10, 2010
- 2010-06-21  
*Transverse momentum dependence in high-energy scattering processes*, Workshop on Transverse momentum Distributions, ECT\*, June 21-26, 2010, Trento, Italy
- 2010-07-15  
*Overview of TMD factorization in high energy scattering processes*, Brookhaven Summer Program on Nucleon Spin Physics, July 13-18, 2010, Brookhaven National Laboratory
- 2010-09-14  
*Universality of Transverse Momentum Dependent Distribution Functions*, Workshop on Perturbative and Nonperturbative Aspects of QCD at Collider Energies, September 14-18, 2010, INT, University of Washington, Seattle, USA

## 4 SUPERVISION OF STUDENTS

### 4.1 Undergraduate students

- A.C. Petersen, 29 June 1993  
*Elastic and quasi-elastic neutrino scattering off nucleons.*
- A. Henneman, 31 May 1994  
*Quark correlation functions in a spectator model.*
- A. Belkhou, 24 Aug. 1997  
*Parton distribution functions of hadrons.*
- A. Poldervaart, 15 Dec. 1997  
*An introduction to various aspects of neutrino physics.*
- P. van der Kamp (begeleider B. Schellekens), 24 Feb. 1998  
*Snarentheorie; quantum-toestanden van zwarte gaten.*
- M. Temürhan (begeleider R.H. Dijkgraaf (UVA)), Aug. 2000  
*Holography; a quest for a theory of quantum gravity.*

- R. Boels, 27 Feb. 2001  
*Lie groups and the generalized Aharonov-Bohm effect*
- M. Baak (begeleider D. Boer), 13 Nov. 2001  
*Anomalous  $W^\pm$ -Fermion Couplings, Theory and Bounds*
- Jeroen Dreschler, 24 Jun. 2003  
*Neutrino oscillations*
- Cedran Bomhof, August 2003  
*Correlation functions in deep inelastic leptonproduction and the  $p^\dagger p \rightarrow \pi X$  scattering process*
- Pedro Jiménez Delgado, June 2004  
*Pentaquarks*
- Dimitris Paseolitis, Sept 2007  
*Fragmentation functions and jet observables*
- Tomas Jezo, August 2008  
*Massive neutrinos in minimal extensions of the standard model*
- Paul McCullough, 2009  
*Aspects of Transverse Momenta of Partons (with Ted Rogers)*
- Lorenzo van Eijsden, 2010  
*Cosmic Rays; their energizing mechanisms and their energy limit*
- Rik Koster, 2011
- Maarten Buffing, 2011
- Andries van der Leden, 2011

## 4.2 Ph.D. students

- 1 W.F.M. Spit  
Quark antisymmetrisation in nuclei,  
Ph.D. thesis, University of Utrecht, 4 Nov. 1991  
Supervisors: P.J. Brussaard and P.J. Mulders
- 2 H. Meyer  
A Spectator Model for Deep Inelastic Scattering,  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 17 Feb. 1992  
Supervisor: P.J. Mulders
- 3 J. Levelt  
Deep inelastic semi-inclusive processes,  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 20 Dec. 1993  
Supervisor: P.J. Mulders

- 4 R.D. Tangerman  
Higher-twist correlations in polarized hadrons,  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 16 Sep. 1996  
Supervisor: P.J. Mulders
- 5 D. Boer  
Azimuthal asymmetries in hard scattering processes,  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 15 Sep. 1998  
Supervisor: P.J. Mulders
- 6 N. Schoonderwoerd  
Light-front Hamiltonian Field Theory  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 14 Jan. 1999  
Supervisors: B.L.G. Bakker and P.J. Mulders
- 7 J. Rodrigues  
Modelling Quark and Gluon Correlation Functions  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 16 Oct. 2001  
Supervisor: P.J. Mulders
- 8 A. Bacchetta  
Probing the transverse of quarks in deep inelastic scattering  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 4 Oct. 2002  
Supervisor: P.J. Mulders
- 9 M. van Iersel  
Aspects of Bound-State Calculations in Light-Front Dynamics  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 19 Oct. 2004  
Supervisors: B.L.G. Bakker and P.J. Mulders
- 10 A. Henneman  
Scale Dependence of Correlations on the Light-Front  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 2 Feb. 2005  
Supervisor: P.J. Mulders
- 11 F. Pijlman  
Single Spin Asymmetries and Gauge Invariance in Hard Scattering Processes  
Ph.D. thesis, Vrije Universiteit, Amsterdam, 12 Jan. 2006  
Supervisor: P.J. Mulders
- 12 H.J. Warringa  
Thermodynamics of QCD-inspired Theories  
Ph.D. thesis, Vrije Universiteit, 28 Feb. 2006  
Supervisors: D. Boer and P.J. Mulders
- 13 C. Bomhof  
Azimuthal Spin Asymmetries in Hadronic Processes  
Ph.D. thesis, Vrije Universiteit, 1 Oct. 2007  
Supervisor: P.J. Mulders

- 14 E. Wessels  
Signatures of gluon saturation in high energy scattering  
Ph.D. thesis, Vrije Universiteit, 17 June 2009  
Supervisors: D. Boer and P.J. Mulders
- 15 J. Boomsma  
Effects of instanton interactions on the phases of quark matter  
Ph.D. thesis, Vrije Universiteit, 17 June 2010  
Supervisors: D. Boer and P.J. Mulders
- 16 C.L. Mantz  
Expected in September 2012  
Supervisor: P.J. Mulders
- 17 W. den Dunne  
Expected in December 2012  
Supervisors: D. Boer and P.J. Mulders

## 5 PROJECTS WITH EXTRA-DEPARTEMENTAL SUPPORT

- Grant (1 graduate student, 1 postdoc) from FOM (beleidsruimte) for the program "Quantum chromodynamics and hadron structure", 1989-1993.  
[kE 180]
- Grant (1 graduate student, 1 postdoc) from FOM (beleidsruimte) for the program "Probing quark and gluon correlations in hard electroweak scattering processes", 1994-1998.  
[kE 230]
- Training and Mobility of Researchers (TMR) Research Training Network "Hadronic Physics with High-energy Electromagnetic Probes" (HAPHEEP) consisting of 12 collaborating institutes (covering in total 36 postdoc years, 3 years for Amsterdam node), 1996-2000.  
[kE 160]
- Grant (1 graduate student, 1 postdoc, 1 visitor) from FOM (projectruimte) for the program "Gluon dynamics in the proton", 1998-2003.  
[kE 275]
- FOM programme "Fundamental Interactions" (FP31), 1 postdoc and 2 Ph.D. students, 1998-2007.  
[~ kE 500]
- IHP Research Training Network "Electromagnetic Scattering off Confined Partons" (ESOP) consisting of 12 collaborating institutes (covering in total 30 postdoc years, 2.5 years for Amsterdam node), 2000-2004.  
[kE 135]
- Grant (4 postdoc years and 1 graduate student) in the University Program USF, "Interdisciplinary aspects of High-Energy Physics", 1999-2004.  
[kE 250]
- KNAW fellowship for Dr. D. Boer (3 + 2 years), 2001-2006.  
[kE 300]
- Integrated Infrastructure Initiative "Hadron Physics" (HP) involving 800 physicists, 2004-2007.  
[kE 76]
- Grant (postdoc position for 3 yrs, 1 visitor) from FOM (projectruimte) for the program "Time reversal odd phenomena in QCD", 2006-2009  
[kE 203]
- Grant (graduate student and postdoc position for 2 years) from FOM (projectruimte) for the program "Color flow in hard hadronic scattering processes", 2008-2012  
[kE 330]

- participant in FOM programme "Theoretical Physics in the LHC Era", 1 postdoc (3 yrs) and 1 graduate student (with D. Boer), 2008-2013, [kE 450]
- Integrated Infrastructure Initiative "Hadron Physics II" (HP) involving about 750 physicists, 2009-2011 [about kE 60]