Fermi National Accelerator Laboratory

FERMILAB-81/37
2000.000
May 1981

MAGNETIC MONOPOLE BIBLIOGRAPHY
1977 - 1980

R.E. Craven and W.P. Trower
Physics Department
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061

R.A. Carrigan, Jr.
Fermi National Accelerator Laboratory
Batavia, Illinois 60510

In commemoration of the Golden Anniversary of

"Quantized Singularities in the Electromagnetic Field"

P.A.M. Dirac (Proc. Roy. Soc. (London) A33:60 1931).

Operated by Universities Research Association Inc. under contract with the Energy Research and Development Administration

"Procul dubio omnes lineae (magneticae) hujusmodi in duo puncta concurrunt sicut omnes orbes meridiani in duo concurrunt polos mundi oppositos."

Epistola Petrus Perigrinus de Maricourt De Magnete (1269)

MAGNETIC MONOPOLE BIBLIOGRAPHY
1977 - 1980

R.E. Craven and W.P.Trower
Physics Department
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061

R.A. Carrigan, Jr.
Fermi National Accelerator Laboratory
Batavia, Illinois 60510

The last four years have seen continuing and growing interest in the magnetic monopole conjecture despite the experimental fact that not a single monopole has been detected in the time since the Petrus Perigrinus report in 1269. The Price, Shirk, Osborne and Pinsky cosmic ray event of 1975 has now been ruled out as a monopole.

None-the-less, there has been substantial theoretical activity, much of which has grown out of gauge theory ideas that ´t Hooft and Polyakov advanced in 1974. In this context Bogomol´ny has shown from group theory that the monopole mass must be at least four times larger than the associated vector boson mass divided by the relevant coupling constant (e.g. for nominal W mass and the electromagnetic coupling constant the monopole mass is $\sim$ 10 TeV in the Georgi-Glashow SO(3) model). These theories have been reviewed recently by D.I. Olive and collaborators.

The present enormous interest in grand unified gauge theories has nurtured an appreciation that a monopole could, or even more strongly, must be associated with the super heavy X_o boson that sets the upper bound of the grand unification desert at 10^{14} GeV. The corresponding monopole mass would be $\sim 10^{16}$ GeV or $\sim$ 20 nanograms.

It would appear that such masses could only have been produced in the very early universe. A small but extremely interesting industry has developed around the relationship of cosmology and grand unification magnetic monopoles (GUMMS). Preskill in a pivotal paper in 1979 notes that a paradoxical situation is raised by the requirements of cosmology, grand unification, and the existing bounds on magnetic monopole abundances. In essence standard cosmology predicts roughly one GUMM per proton. Limits including the rate of expansion of the universe, indicate that the abundance must be at least 10^{-14} less than this. A number of ways to lower the ratio have been suggested, including first order phase transitions (Guth and Tye), electric charge non-conservation (Langacker and Pi), unusual group structures (Lazarides and Shafi), and cosmological statistical non-equilibrium (Fry and Schramm).

One of the first, if not the first, monopole related paper to estimate the monopole flux based on a consistent physical picture is by Lazarides, Shafi, and Walsh. Their calculated cosmical GUMM flux, $\sim$ 10^{-3} to 10^{-6} monopoles/m^2/year, is consistent with theories which reduce the monopole to baryon ratio and with monopole bounds set by cosmical constraints such as the universe expansion rate and the known galactic magnetic fields. The elegant book, Cosmical Fields by Parker, also discusses monopole flux limits.

A GUMM moving through a detector on the earth would have a unique signature: a low velocity, $\beta \sim 10^{-2}$, but extremely large kinetic energy, $\sim 10^{12}$ GeV, and so could probably pass through the earth even if it were heavily ionizing.

A number of possibilities are now under investigation for probing the upper GUMM flux limit. Notes on efforts by Ullman et al. and Longo have already appeared. More conventional searches for monopoles are also now underway at the SPSC and PEP.

This bibliography has had two immediate progenators. The first by D.M. Stevens, published by Virginia Tech in 1970 and updated in 1973, covered the period 1931-1973 and had 160 entries. The second, by R.A. Carrigan, Jr. and issued by Fermilab, covered the period 1973-76 and included about 270 entries. Each of these bibliographies had brief summaries of the content of the articles. As the present bibliography, from 1977-1980, includes 651 entries it has been impossible to read, let alone abstract, even a fraction of the material. We have, however, attempted to assign each title to one of the categories listed below:

A Theory - General
B Theory - Charge Quantization
C Theory - Invariance
D Theory - Electrodynamics
E Theory - Relativity
F Theory - Gravity
G Theory - Gauge
H Theory - Strings, Dual Models
I Theory - Production
J Theory - Scattering
K Experiment - Detection
L Experiment - Searches
M Experiment - Critiques
N Experiment - Detection Schemes
P Experiment - Large Scale Effects
Q Experiment - Gamma Ray Events
R Monopole Reviews
S General Reviews - Hypothetical Particles
T Related Topics
U Theory - Grand Unification
X Models - (e.g. Constituents, Preons, etc.)
Z Cosmology - Mainly Theory

Earlier entries which have either been modified or which appear in the open literature are included and noted by a trailing *. In the next section each article is ordered roughly alphabetically by first author and assigned a serial number which is supplemented by the category codes above. In the last section each article is cross referenced by author.

Work at Virginia Tech was performed under the auspices of the National Science Foundation. Essential support for the preparation of this report was obtained from the Virginia Academy of Science. Three compilations used for cross checking our biblography were generously provided by Paolo Palazzi, DD Division-CERN. Much of the onerous technical burden of preparing this bibliography was lightened by the marvelous computer facility of Al Brenner and his colleagues at Fermilab. Without the resources of Roger Thompson, his library and superb staff at Fermilab, the accuracy of this document would have been much decreased. Finally, it was Elaine Moore who educated us in the deeper mysteries of text editing.

BIBLIOGRAPHY

1A Interaction of Electric and Magnetic Charges
Adawi I.
Phys Rev 16D:1232 (1977).

2G Small Deformations of the Prasad-Sommerfield Solution
Adler S.L.
Phys Rev 19D:2997 (1979).

3N Trapping Energy of a Magnetic Monopole in Magnetic Materials
Agarwal G.S., Jha S.S.
Pramana 6:349 (1976).

4N Stopping-Power Formula for Magnetic Monopoles
Ahlen S.P.
Phys Rev 17D:229 (1978).

5N Theoretical and Experimental Aspects of the Energy Loss of Relativistic Heavily Ionizing Particles
Ahlen S.P.
Rev Mod Phys 52:121 (1980).

6N Limits on the Thermoacoustic Detectability of Electric and Magnetic Charges
Akerlof C.W.
Michigan-Preprint (1980).

7G Linear Deformations of the Prasad-Sommerfield Monopole
Akhoury R., Jun J.H., Goldhaber A.S.
Phys Rev 21D:454 (1980).

8G* ´t Hooft´s Non-Abelian Magnetic Flux Has Zero Classica Ambjorn J., Flyvbjerg H.
Phys Lett 97B:241 (1980).

9G Interference, Gravity and Gauge Fields
Anandan J.
Nuovo Cim 53A:221 (1979).

10G Quantum Interference and the Classical Limit
Anandan J.
Pittsburgh-78-0381 (1978).

11A Theory of Dual-Charged Particles (Master Thesis)
Anderson S.K.
Naval Postgraduate School, Monterey, CA (1977).

12E Tachyons and Magnetic Monopoles in the De Sitter Universe
Arcidiacono G.
in Tachyons, Monopoles and Related Topics, E.Recami, Ed.
(North-Holland, Amsterdam 1978) p.115

13G Classical Solutions of SO(3,1) Gauge Theory
Ardalan F.
Phys Rev 17D:1131 (1978).

14T Physical Mechanism for Quark Confinement via Pseudoparticles
Argyres E.N., Lam C.S.
Phys Rev 18D:2100 (1978).

15H Monopoles, Duality, Triality
Artru X.
Orsay-LPTHE-77-18 (1977).

16A Electromagnetism Without Monopoles is Possible in Nontrivial U(1)-Fibre Bundles
Asorey M., Boya L.J.
J Math Phys 20:2327 (1979).

17A Quantization of Superparameterized Monopoles
Baaklini N.S.
Nucl Phys 142B:510 (1978).

18G Pure Classical SU(2) Yang-Mills Theory with Potentials Invariant Under a U(1) Gauge Subgroup
Bacry H., Nuyts J.
Nucl Phys 151B:469 (1979).

19I Energetics of Monopole Production
Badhwar G.D., Golden R.L., Lacy J.L., Stephens S.A.
in Fourteenth International Cosmic Ray Conference, (Munchen, Germany 1975) p.4068

20G Charge-Monopole Duality in Spontaneously Broken Gauge Theories
Bais F.A.
Phys Rev 18D:1206 (1978).

21G Configurations of SO(3) Monopoles with Multiple Magnetic Charge
Bais F.A.
Phys Lett 64B:465 (1976).

22G Exact Monopole Solutions in SU(n) Gauge Theory
Bais F.A., Weldon H.A.
Phys Rev Lett 41:601 (1978).

23G Magnetic Monopoles in Non-Abelian Gauge Theory (Ph.D. Thesis)
Bais F.A.
UC Santa Cruz-UMI-78-04533 (1977).

24G Magnetic Monopole Solution in Non-Abelian Gauge Theory in Curved Spacetime
Bais F.A., Russell R.J.
Phys Rev 12D:3368 (1975).

25Z On the Suppression of Monopole Production in the Very Early Universe
Bais F.A., Rudaz S.
Nucl Phys B170:507 (1980).

26G SO(3) Monopoles and Dyons with Multiple Magnetic Charge
Bais F.A.
Phys Lett 64B:465 (1976).

27G Spherically Symmetric Monopoles in Non-Abelian Gauge Theories
Bais F.A., Primack J.R.
Nucl Phys 123B:253 (1977).

28G The Topology of Monopoles Crossing a Phase Boundary
Bais F.A.
Utrecht-80-0840 (1980).

29G Zero Modes and Boundstates of the Supersymmetric Monopole
Bais F.A., Troost W.
Leuven-KUL-TF-79/033 (1979).

30G O(3) Symmetric Monopoles and Instantons
Bais F.A.
Leuven-KUL-TF-79/021 (1979).

31N Radiological Experience with the Fall 1972 Monopole Dump
Baker S., Carrigan R.A., Nezrick F.
Fermilab-TM-419-A (1973).

32A Analyticity of the Charge-Monopole Scattering Amplitude
Balachandran A.P., Borchardt S., Chang S.S., Stern A., Cahalan R., Ramachandran R., Rupertsberger H.
Phys Rev 17D:1150 (1978).

33G Lagrangian and Hamiltonian Descriptions of Yang-Mills Particles
Balachandran A.P., Borchardt S., Stern A.
Phys Rev 17D:3247 (1978).

34H Magnetic Monopoles with No Strings
Balachandran A.P., Marmo G., Stern A.
Nucl Phys 162B:385 (1980).

35H Monopole Theories with Strings and Their Applications to Meson States
Balachandran A.P., Schechter J., Wali K.C., Ramachandran R., Rupertsberger H.
in _Group Theoretical Methods in Physics_, A. Janner _et al._, Eds. (Springer-Verlag, Berlin 1976) p.24

36G Monopole Theory with a Massive Gauge Field and Nambu's Hamiltonian
Balachandran A.P., Rupertsberger H., Schechter J.
Syracuse-SU-4205-41 (1974).

37T Semiclassical Functional Methods for Arbitrary Hamiltonians
Balachandran A.P., Ramachandran R., Rupertsberber H.
Phys Rev 15D:457 (1977).

38H Supersymmetric Point Particles and Monopoles with No Strings
Balachandran A.P., Marmo G., Skagerstam B.S., Stern A.
Nucl Phys 164B:427 (erratum 169B:547) (1980).

39U Existence of Magnetic Monopoles in the Unified Field Theory
Balog J., Hrasko P.
Phys Rev 18D:4802 (1978).

40G Comment on Phase Transitions in Z(N) Gauge Theories
Banks T., Horn D.
Phys Rev 21D:2423 (1980).

41G Improved Formalism for Abelian Magnetic Monopoles
Banks T., Tomboulis E.
Phys Rev 20D:501 (1979).

42G Phase Transitions in Abelian Lattice Gauge Theories
Banks T., Myerson R., Kogut J.
Nucl Phys 129B:493 (1977).

43G Spin-Dependent Forces in a Semiclassical Model of Confinement
Banks T., Spiegelglas M.
Nucl Phys 152B:478 (1979).

44N Quarks and Monopoles at LEP
Barbiellini G., Bonneaud G., Cashmore R.J., Coignet G., Ellis J., Gaillard M.K., Grivaz J.F., Matteuzzi C., Peccei R.D., Wiik B.H.
DESY-80/42 (1980).

45A Local Field Theory for Solitons
Bardakci K., Samuel S.
Phys Rev 18D:2849 (1978).

46H Quantum-Mechanical Formulation of the Electron-Monopole Interaction Without Dirac Strings
Barker W.A., Graziani F.
Phys Rev 18D:3849 (1978).

47X Heavy Neutral Lepton Predicted by a Magnetic Quark Model
Barricelli N.A.
Oslo-ISBN-82-553-0385-5 Applied Math #3 (1979).

48X Magnetic Quark Models for the Interpretation of the Masses of Elementary Particles
Barricelli N.A.
Oslo-ISBN-82-553-0368-5 Applied Math #6 (1978).

49A Short-Range Field Problems Connected with Magnetic Monopoles
Barricelli N.A.
Oslo-ISBN-82-553-0367-7 Applied Math #5 (1978).

50U Cosmological Constraints on the Scale of Grand Unification
Barrow J.D., Ross G.G.
Oxford-Theory-76/80 (1980).

51E Spinor Theory of General Relativity without Elementary Gravitons
Bars I., MacDowell S.W.
Phys Lett 71B:111 (1977).

52L Search for Tachyon Monopoles in Cosmic Rays
Bartlett D.F., Soo D., White M.G.
Phys Rev 18D:2253 (1978).

53L Search for Tachyon Monopoles in Cosmic Rays
Bartlett D.F., White M.G.
in Proceedings of the XVII Conference on High Energy Physics
(Dubna, USSR 1976) p.N24

54B* Charge Quantization Condition with N Strings. A New Internal
Quantum Number of Charge-Monopole Systems
Barut A.O.
Lett Math Phys 1:367 (1977).

55B Charge Quantization Theorem. Reply to a Paper by Usachev
Barut A.O.
Sov J Part Nucl 10:209 (1979).

56J Classical Relativistic Scattering of Two Dyons
Barut A.O., Beker H.
Nuovo Cim 19:309 (1974).

57D Covariant Field Equations for an Electromagnetic String with
Mass Points at the Ends
Barut A.O.
J Phys 11A:2073 (1978).

58D Electrodynamics with Strings and Monopoles
Barut A.O.
in Tachyons, Monopoles and Related Topics, E.Recami, Ed.
(North-Holland, Amsterdam 1978) p.227

59D Electromagnetic Fields on Manifolds: Betti Numbers, Monopoles
and D Strings, Minimal Coupling
Barut A.O.
in Differential Geometrical Methods in Mathematical Physics, K.
Bleuler et al. Eds. (Springer-Verlag, Berlin 1978) p.179

60X The New Mathematical and Physical Problems of Superstrong
Coupling of Magnetic Monopoles and Composite Hadrons
Barut A.O.
in Studies in Mathematical Physics, A.O. Barut Ed. (D. Reidel,
Dordrecht 1973) p. 315

61C Spin-Statistics Connection for Dyonium
Barut A.O.
Phys Rev 10D:2709 (1974).

62E Structure of Space-Time in the Small Electromagnetic Fields Over Manifolds with Betti Numbers
Barut A.O.
in _Quantum Theory and the Structure of Time and Space_ (Verlag, Munchen 1977) p.214

63E Extended Singularities of the Electromagnetic Fields as a Model of Elementary Particles
Barut A.O.
in _Quantum Theory and the Structure of Time and Space_, L. Castella _et al._ Eds. (Verlag, Munchen 1975) p.103

64B The Theorem of Charge Quantization (in Russian)
Barut A.O.
Fiz Chastits I Yadra 10:539 (1979).

65T Do Scalar Fields Make Instantons?
Bassetti B., Butera P., Cicuta G., Zanon D., Riva F.
Nuovo Cim Lett 20:21 (1977).

66J Electron-Monopole Scattering at Small Angles in the Quantum Theory of the Dirac-Schwinger Monopole (in Russian)
Bazhanov V.V., Borodulin V.I., Pron´ko G.P., Solov´ev L.D.
Teor Mat Fiz 40:355 (1979).

67J Small Angle Electron-Monopole Scattering in Quantum Theory of Dirac-Schwinger Monopole (in Russian)
Bazhanov V.V., Borodulin V.I., Pron´ko G.P., Solov´ev L.D.
Teor Mat Fiz 40:795 (1980).

68A Hadron Structure and Spatially Extended Dyons
Beker H.
Bogazici-FB-77-01 (1977).

69J Spatially Extended Dyons and Hadron Collisions
Beker H.
Bogazici-FB-77-03 (1977).

70X Spatially Extended Dyons and Meson Mass Spectrum
Beker H.
Bogazici-FB-78-04A (1978).

71X Spatially Extended Monopoles and the Neutral Pion: A Semiclassical Approach
Beker H.
Bogazici-FB-76-03 (1976).

72G Gauge-Fixing Degeneracies and Confinement in Non-Abelian Gauge Theories
Bender C.M., Eguchi T., Pagels H.R.
Phys Rev 17D:1086 (1978).

73G Confinement in Compact QED for Low Couplings
Ben-Menahem S.
Phys Rev 20D:1923 (1979).

74F Gravitational Monopoles with Classical Torsion
Benn I.M., Dereli T., Tucker R.W.
J Phys Math 13A:L359 (1980).

75N New Particle Searches at PEP
Berley D., Bulos F., Cheng D., Cork B., Limon P., Litke A., Nauenberg U., Rosen J., Shen B., Sulak L., Trefil J., Winkelmann F.
in PEP 1974 Summer Study
Lawrence Berkeley-PEP-0174 (1976).

76T Non-Universality of the G/E Relation in the Relativistic Kepler Problem (in Russian)
Biza Y.S., Tomil'chik L.M.
Teor Mat Fiz 24:325 (1975).

77A One Potential Formulation of the Quantum Field Theory of Magnetic Monopoles
Blagojevic M., Senjanovic P.
Nucl Phys 161B:112 (1979).

78A New Approach to the Quantum Field Theory of Electric and Magnetic Charge
Blagojevic M., Nesic D., Senjanovic P., Sijacki D., Zivanovic D.
Phys Lett 79B:75 (1978).

79H Duality Transformations and Weak Fields in the Nonsymmetric Unified Field Theory
Boal D.H., Noakes D.R.
Alberta-76-0817 (1976).

80G* Stability of Classical Solutions
Bogomolny E.B.
Sov J Nucl Phys 24:449 (1976).

81G* On the Gauge Field of Magnetic Monopoles
Bollini C.G., Giambiagi J.J.
Nucl Phys 123B:311 (1977).

82A On the Motion of a Charged Particle in the Field of a Magnetic Monopole
Bollini C.G., Ferreira P.L.
Nucl Phys 137B:351 (1978).

83A Dyon-Dyon Interaction in Predictive Relativistic Mechanics
Bona C., Fustero X., Mas L.
Phys Rev 18D:4770 (1978).

84Z On the Creation of Magnetic Monopoles in Pulsars
Bonnardeau M., Drukier A.K.
Astrophys Space Sci 60:375 (1979).

85S From Quarks to Tachyons: A Review of "Fundamental" Particle Hunting
Boratav M.
CERN-EP-80-77 (1980).

86T Kerr-Schild Geometry, Spinors and Instantons
Boutableb H.J., Chakrabarti A.
Phys Rev 19D:457 (1979).

87G Homotopy and Solitons
Boya L.J., Carinena J.F., Mateos J.
Fortschr Phys 26:175(205) (1978).

88A On the Interaction of Classical Fields and Particles
Brachet M.E., Tirapegui E.
Nuovo Cim 47A:210 (1978).

89A* Avoiding "Dirac´s Veto" in Monopole Theory
Brandt R.A., Primack J.R.
Phys Rev 15D:1798 (1977).

90H* Dirac Monopole Theory With and Without Strings
Brandt R.A., Primack J.R.
Phys Rev 15D:1175 (1977).

91A Electric-Magnetic Duality as a Secondary Symmetry
Brandt R.A., Young K.
Nucl Phys 162B:168 (1980).

92C Lorentz Invariance from Classical Particle Paths in Quantum Field Theory of Electric and Magnetic Charge
Brandt R.A., Neri F., Zwanziger D.
Phys Rev 19D:1153 (1979).

93C Lorentz Invariance of the Quantum Field Theory of Electric and Magnetic Charge
Brandt R.A., Neri F., Zwanziger D.
Phys Rev Lett 40:147 (1978).

94G Magnetic Monopoles in SU(N) Gauge Theories
Brandt R.A., Neri F.
New York-NYU-TR1-80 (1980).

95G Non-Abelian Gauge Invariant Classical Lagrangian Formalism for Point Electric and Magnetic Charge
Brandt R.A., Neri F.
Nucl Phys 145B:221 (1978).

96A Remarks on Zwanziger´s Local Quantum Field Theory of Electric and Magnetic Charge
Brandt R.A., Neri F.
Phys Rev 18D:2080 (1978).

97G Singular Gauge Transformations and Magnetic Monopoles
Brandt R.A., Neri F.
New York-NYU-TR4-80 (1980).

98A The Spin Statistic Connection for Dyons
Brandt R.A., Primack J.R.
Int J Theor Phys 17:267 (1978).

99G Stability Analysis for Singular Non-Abelian Magnetic Monopoles
Brandt R.A., Neri F.
Nucl Phys 161B:253 (1979).

100G Magnetic Monopoles in SU(4) Gauge Theories
Brihaye Y., Nuyts J.
J Math Phys 18:2177 (1977).

101L Observational Limits on the Magnetic-Monopole Structure of Protons
Broderick J.J., Ficenec J.R., Teplitz D.C., Teplitz V.L.
Phys Rev 19D:1046 (1979).

102A Backlund Transformations and Magnetic Monopoles
Bruce D.J.
Nucl Phys 142B:253 (1978).

103G Diamagnetic and Critical Properties of Higgs Lattice Gauge Theories
Brydges D., Frohlich J., Seiler E.
Nucl Phys 152B:521 (1979).

104L Search for New Particles and Antinuclei (in Russian)
Bunyatov S.A.
Sov J Part Nucl 10:259 (1979).

105G SU(3) Monopole with Magnetic Quantum Numbers (0,2)
Burzlaff J.
Kaiserslautern Preprint (1980).

106T Exponential Hadronic Spectrum and Quark Liberation
Cabibbo N., Parisi G.
Phys Lett 59B:67 (1975).

107N The Use of Superconducting Shields for Generating Ultra- Low Magnetic Field Regions and Several Related Topics (Ph.D. Thesis)
Cabrera B.
Stanford-Low Temp Phys-Preprint (1975).

108T Phase Transitions in QCD as Tunneling Through Singular Barriers
Callan C.G., Dashen R., Gross D.
Phys Lett 77B:270 (1978).

109T Index Theorem on Open Spaces
Callias C.J.
Mass Inst Tech-MIT-CTP-694 (1977).

110A Spectra of Fermions in Monopole Fields: Exactly Soluble Models
Callias C.J.
Phys Rev 16D:3068 (1977).

111E Tachyonic Matter
Camenzind M.
in Tachyons, Monopoles and Related Topics, E. Recami, Ed.
(North-Holland, Amsterdam 1978) p.89

112C Invariant Connections and Magnetic Monopoles
Cant A.
St. Andrews-80-0341 (1980).

113G Classification of SU(2) Gauge Fields: Lorentz-Invariant Verses Gauge-Invariant Schemes
Carmeli M., Fischler M.
Phys Rev 19D:3653 (1979).

114G Classification of Yang-Mills Fields
Carmeli M.
Nuovo Cim 52A:545 (1979).

115G Classification of Yang-Mills Fields
Carmeli M.
Phys Rev Lett 39:523 (1977).

116G Einstein-Maxwell Equations: Gauge Formulation and Solutions for Radiating Bodies
Carmeli M.
Fortschr Phys 27:261 (1979).

117F* Gauge Field Model of Combined Gravitational, Electromagnetic and Magnetic Monopole Fields
Carmeli M., Kaye M.
Nuovo Cim 39B:187 (1977).

118F Gauge Group Theory of Combined Gravitational and Electromagnetic Interactions
Carmeli M., Kaye M.
Nuovo Cim Lett 17:275 (1976).

119G Monopole Solution of Yang-Mills Equations
Carmeli M.
Phys Lett 68B:463 (1977).

120G Null-tetrad Formulation of the Yang-Mills Field Equations
Carmeli M., Charac C., Kaye M.
Nuovo Cim 45B:310 (1978).

121P Down to Earth Speculations of Grand Unification Magnetic Monopoles
Carrigan R.A.
Fermilab-80/58-Exp (1980).

122P Grand Unification Monopoles Inside the Earth
Carrigan R.A.
Nature 288:348 (1980).

123R Magnetic Monopole Bibliography: 1973-1976
Carrigan R.A.
Fermilab-77/42 (1977).

124L Search for Magnetic Monopoles at the CERN-ISR
Carrigan R.A., Strauss B.P., Giacomelli G.
Phys Rev 17D:1754 (1978).

125G Exact Monopole Solution and Euclidean Yang-Mills Field
Cervero J.M.
Harvard-HUTP-77/A011 (1977).

126T Introduction to Classical Solutions of Yang-Mills Field Equations
Chakrabarti A.
Ecole Poly-CPT-78-0957 (1978).

127G On Classical Solutions of SU(3) Gauge Field Equations
Chakrabarti A.
Ann Inst Hen Poin 23:235 (1975).

128G On Classical Solutions for SU(4) Gauge Fields: Interacting Monopoles
Chakrabarti A., Dipoko J.
Phys Rev 15D:3011 (1977).

129U On the Characterization in Non-Abelian Gauge Theories
Chan H.M., Tsou S.T.
Phys Lett 95B:395 (1980).

130G Monopole Charges in Unified Gauge Theories
Chan H.M., Tsou S.T.
CERN-TH-2891 (1980).

131X U(3) Monopoles as Fundamental Constituents
Chan H.M., Tsou S.T.
CERN-TH-2955 (1980).

132A Classical Lagrangian Theory with Radiative Reaction: Extension of the Rohrlich Two-Field Formalism to Include Monopoles
Cheng K.S.
Phys Rev 18D:549 (1978).

133H Monopole Theory Without Strings
Cheng K.S.
J Math Phys 18:746 (1977).

134G Remarks on the Asymptotic Behavior of the ´t Hooft´s Magnetic Monopole
Chernavskii D.S., Kerner R.
J Math Phys 19:287 (1978).

135A Colored Monopoles
Cho Y.M.
Phys Rev Lett 44:1115 (1980).

136G Gauge Theory of the Nonabelian Magnetic Charges
Cho Y.M.
Max Planck-MPI-PAE/PTh-5/79 (1979).

137X Magnetic Confinement of the Quarks
Cho Y.M.
Max Planck-MPI-PAE/PTh-11/79 (1979).

138G A Restricted Gauge Theory
Cho Y.M.
Phys Rev 21D:1080 (1980).

139G Equality of Magnetic Charge and Pontryagin Index for Yang-Mills Dyons
Christ N.H., Jackiw R.
Phys Lett 91B:228 (1980).

140G* Can One Dent a Dyon?
Coleman S., Parke S., Neveu A., Sommerfield C.M.
Phys Rev 15D:544 (1977).

141G Classical Lumps and Their Quantum Descendents
Coleman S.
in New Phenomena in Subnuclear Physics, N. Zichichi Ed. (Plenum, London 1976) p.297

142E Magnetic Monopoles in Curved Spacetimes
Comtet A.
Orsay-IPNO/TH 79-64 (1979).

143U Supercooling in the SU(5) Phase Transitions and Magnetic Monopole Suppression
Cook G.P., Mahanthappa K.T.
Phys Rev D23:1321 (1981).

144E Tachyon Matter and Complex Physical Variables
Corben H.C.
Nuovo Cim 29A:415 (1975).

145E Thought Experiments at Superluminal Relative Velocitites
Corben H.C.
Int J Theor Phys 15:703 (1976).

146G Rotationally Invariant Solutions of the Yang-Mills-Higgs System for a General Gauge Group: Magnetic Monopoles
Cordero P.
Nucl Phys 131B:525 (1977).

147G On the Instability in Non-Abelian Gauge Theories with Constant Magnetic Flux
Cosenza G., Neri F.
New York-NYU-TR3/80 (1980).

148G Bound States with a Gauge Monopole
Cox P.H., Yildiz A.
Phys Rev 18D:1211 (1978).

149T Spontaneous Compactification of Extra Space Dimensions
Cremmer E., Scherk J.
Nucl Phys 118B:61 (1977).

150T Extended Objects
Creutz M.
Brookhaven-BNL-21923 (1976).

151T Quantum Fluctuations and the Bag Model
Creutz M.
Phys Rev 13D:3423 (1976).

152T Quantum Mechanics of Extended Objects in Relativistic Field Theory
Creutz M.
Phys Rev 12D:3126 (1975).

153T Quark "Bags" and Local Field Theory
Creutz M.
Phys Rev 10D:1749 (1974).

154T Quark Bags and Local Field Theory II: Confinement of Fermi and Vector Fields
Creutz M., Soh K.S.
Phys Rev 12D:443 (1975).

155G SU(3) Monopoles Saturating the Bogomolny Bound
Czechowski A.
CERN-TH-2282 (1977).

156A Supersymmetric Magnetic Monopoles and Dyons
D'Adda A., Horsley R., De Vecchia P.
Phys Lett 76B:298 (1978).

157A On the Energy Levels and the Stationary States of the Exotic Atoms Containing Monopoles (in Chinese)
Dai X.X.
Phys Energ Fort Phys Nucl 2:305 (1978).

158U SU(5) Monopoles, Magnetic Symmetry and Confinement
Daniel M., Lazarides G., Shafi Q.
Nucl Phys 170B:156 (1980).

159D Formulation of Electromagnetism in a Six-Dimensional Space-Time
Dattoli G., Mignani R.
Nuovo Cim Lett 22:65 (1978).

160E Massive Photons and Tachyon Monoples
Dattoli G., Mattioli M., Mignani R.
Nuovo Cim Lett 20:686 (1977).

161G A Note on the Abelian Higgs-Kibble Model on a Lattice: Absence of Spontaneous Magnetization
De Angelis G.F., De Falco D., Guerra F.
Phys Rev 17D:1624 (1978).

162T Critical Higgs Mass for the (2+1) Dimensional Georgi-Glashow Model
Dietz K., Filk T.
Nucl Phys 164B:536 (1980).

163G Scaling Stability of Monopoles and Instantons
Dimopoulos S.
Chicago-EFI-77/18 (1977).

164R Magnetic Monopoles
Dirac P.A.M.
in Directions in Physics (Wiley, New York 1978) p.39

165T The Dynamics of Streams of Matter
Dirac P.A.M.
in Deeper Pathways in High-Energy Physics, A. Perlumutter and L.F. Scott Eds. (Plenum, New York 1977) p.1

166R The Monopole Concept
Dirac P.A.M.
Int J Theor Phys 17:235 (1978).

167A Supersymmetric Dirac Particles
De Vecchia P.
Phys Lett 73A:371 (1979).

168A Schwinger's Phenomenological and Dyon Descriptions for the New Particles
Dobson P.N., Tuan S.F.
Phys Rev 18D:296 (1978).

169U Monopoles and Dyons in the SU(5) Model
Dokos C.P., Tomaras T.N.
Phys Rev 21D:2940 (1980).

170Z Cosomology and Elementary Particles (in Russian)
Dolgov A.D., Zeldovich Y.B.
Usp Fiz Nauk 130:559 (1980).

171G Noncontinuous Gauge Potentials without Magnetic Monopoles
Doria F.A.
J Math Phys 20:1464 (1979).

172S Proton Antiproton Collisions at the CERN SPS
Dowell J.D.
in Quarks, Gluons, and Jets, Vol I, J. Tran Thanh Van Ed. (Dreux, Orsay 1979) p.655

173S Elementary Particle Physics
Drell S.D.
SLAC-2043 (1977).

174Z Magnetic Monopoles Creation in Pulsars
Drukier A.K.
Copenhagen-Preprint (1977).

175B Einstein-Yang-Mills Pseudoparticles and Electric Charge Quantization
Duff M.J., Madore J.
Phys Rev 18D:2788 (1978).

176M A New Interpretation of an Event Attributed to a Magnetic Monopole
Durgaprasad N., Rao M.V.S.
Pramana 10:131 (1978).

177L Evidence Against Production of Magnetic Monopoles at Fermilab
Eberhard P.H., Ross R.R., Taylor J.D., Alvarez L.W., Oberlack H.
Lawrence Berkeley-LBL-3680 (1975).

178L Search for Magnetic Monopoles in Lunar Material
Eberhard P.H., Ross R.R., Alvarez L.W., Watt R.D.
Phys Rev 4D:3260 (1981).

179Z Monopole Production in the Very Early Universe in a First Order Phase Transition
Einhorn M.B., Sato K.
Nordita-80/56 (1980).

180G Phase Transitions in the Abelian Higgs Model
Einhorn M.B., Savit R.
Phys Rev 19D:1198 (1979).

181Z The Production of Magnetic Monopoles in the Very Early Universe
Einhorn M.B.
Nordita-80/24 (1980).

182G Topological Excitations in the Abelian Higgs Model
Einhorn M.B., Savit R.
Phys Rev 17D:2583 (1978).

183Z Are Grand Unified Theories Compatible with Standard Cosmology?
Einhorn M.B., Stein D.L., Toussaint D.
Phys Rev 21D:3295 (1980).

184T Weak Interactions at High Energies
Ellis J.
SLAC-2177 (1978).

185U Grand Unified Theories
Ellis J.
CERN-Th2942 (1980).

186T Dynamical and Topological Considerations on Quark Confinement
Englert F., Windey P.
Phys Rep 49:173 (1979).

187X Electric and Magnetic Confinement Schemes
Englert F.
in Hadron Structure and Lepton-Hadron Interactions, M. Levy et al. Eds. (Plenum, New York 1977) p.503

188A Electric Confinement and Magnetic Superconductors
Englert F., Windey P.
Nucl Phys 135B:529 (1978).

189H Electric-Magnetic Duality and Quark Confinement
Ezawa Z.F.
Max Planck-MPI-PAE/PTh-14/79 (1979).

190T Electric Quark Confinement in 2+1 Dimensions
Ezawa Z.F.
Phys Lett 85B:87 (1979).

191T Electric Quark Confinement in 3+1 Dimensions
Ezawa Z.F.
Phys Lett 86B:313 (1979).

192G Quantum Soliton Operators for Monopoles and a Fermion-Boson Puzzle
Ezawa Z.F.
Phys Lett 81B:325 (1979).

193G* A Theory of Dirac Monopoles with a Non-Abelian Symmetry
Ezawa Z.F., Tze H.C.
Phys Rev 15D:1647 (1977).

194G In Search of Many-dimensional Solitons
Faddeev L.D.
in <u>Nonlocal, Nonlinear and Nonrenormalizable Field Theories,</u>
(Dubna, USSR 1976) p.207

195G Quantization of Solitons
Faddeev L.D.
in <u>Proceedings of the XVII Conference on High Energy Physics</u>
(Dubna, USSR 1976) p.T50

196I Comment on the Production of High-Mass Low-Velocity Magnetic Monopoles in the Atmosphere
Falik D., Opher R.
Phys Rev 17D:923 (1978).

197N Possible Existence of Fractional Charges and Magnetic Monopoles in Matter
Falik D., Opher R.
Phys Rev 18D:2694 (1978).

198A Geometric Interpretaion of Magnetic Fields and the Motion of Charged Particles
Felsager B., Leinaas J.M.
Nucl Phys 166B:162 (1980).

199D Formulations of Electrodynamics with Magnetic Monopoles
Ferrari E.
in <u>Tachyons, Monopoles and Related Topics</u>, E. Recami Ed.
(North-Holland, Amsterdam 1978) p.203

200A Phase Transition in a Monopole Gas (in German)
Filk T.
Bonn-IR-79-20 (1979).

201T Holistic Methods
Finkelstein D.
Int J Theor Phys 17:293 (1978).

202G Generating the Bogomolny-Prasad-Sommerfield One-Monopole Solution by a Backlund Transformation
Forgacs P., Horvath Z., Palla L.
Phys Rev Lett 45:505 (1980).

203G Exact Multimonopole Solutions in the Bogomolny-Prasad-Sommerfield Limit
Forgacs P., Horvath Z., Palla L.
Budapest-KEKI-1980-122 (1980).

204G Order and Disorder in Gauge Systems and Magnets
Fradkin E., Susskind L.
Phys Rev 17D:2637 (1978).

205G Relationship Between Gauge Field Theories and Dual Resonance Models
Frampton P.H.
in New Phenomena in Subnuclear Physics, N. Zichichi Ed. (Plenum, New York 1977) p.49

206N Transitional Radiation for Magnetic Charge (in Russian)
Frank I.M.
Sov J Nucl Phys 29:180 (1979).

207R Scalar and Pseudoscalar Charges
Frankel S.
Am J Phys 44:683 (1976).

208A Comment on Cawley's Counterexample to a Conjecture of Dirac
Frenkel A.
Phys Rev 21D:2986 (1980).

209C* Invariance Properties of the Dirac Monopole
Frenkel A., Hrasko P.
Annals Phys 105:288 (1977).

210E Reformulation of the Relativistic Theory of the Dirac Monopole
Frenkel A.
Budapest-KFKI-1977-95 (1977).

211G Magnetically Extended Gauge Theories
Freund P.G.O.
Phys Lett 76B:73 (1978).

212G Monopoles, Topology, Symmetry
Freund P.G.O.
Int J Theor Phys 17:301 (1978).

213B Angular Momentum and Dirac Charge Quantization in Curved Spacetime
Friedman J.L., Mayer S., Parker L.
Phys Rev 17D:1957 (1978).

214A Dyon Spin and Statistics: A Fiber-Bundle Theory of Interacting Magnetic and Electric Charges
Friedman J.L., Sorkin R.D.
J Math Phy 73:161 (1980).

215A A Spin-statistics Theorem for Composites Containing Both Electric and Magnetic Charges
Friedman J.L., Sorkin R.D.
Phys Rev 20D:2511 (1979).

216Z Unification, Monopoles and Cosmology
Fry J.N., Schramm D.N.
Phys Rev Lett 44:1361 (1980).

217X On the Magnetically Bound Monopole Pair, A Possible Structure for Fermions
Fryberger D.
Nuovo Cim Lett 28:313 (1980).

218D A Semiclassical Monopole Configuration for Electromagnetism
Fryberger D.
SLAC-2474 (1980).

219T Pseudobaryons
Fukgita M., Konishi K., Hansson T.H.
Phys Lett 74B:261 (1978).

220E Predictive Relativistic Mechanics of Magnetic Monopoles and Electric Charges
Fustero X., Mas L., Lapiedra R.
Phys Rev 16D:3473 (1977).

221R Discovery of the Monopole (in Czech)
Galitskii V.
Veda Tech SSSR 6:93 (1978).

222F Outline of a Classical Theory of Quantum Physics and Gravitation
Gallop J.W.
Int J Theor Phys 14:237 (1975).

223D Null-Plane Analysis of Electromagnetism with Magnetic Charges
Gambni R., Salamo S.
Nuovo Cim 49A:276 (1979).

224A Dirac Particle and Magnetic Charges
Garbaczewski P.
Wroclaw-80-0744 (1980).

225A On the Strength of the Dirac Monopole
Garwin L.J., Garwin R.L.
Am J Phys 45:164 (1977).

226G Solitons and Instantons
Gervais J.L.
in _Proceedings of the 1977 European Conference on Particle Physics_, L. Jenik and I. Montavy Eds. (CRIRP, Budapest 1977) p.1255

227L Physics at the CERN-ISR
Giacomelli G., Jacob M.
Phys Rep 55:1 (1979).

228S Searches for Missing Particles
Giacomelli G.
in Proceedings of the 1978 International Meeting on Frontier of Physics, K.K. Phau et al. Eds. (SNAS, Singapore 1978) p.565

229A Black Hole Dyons Need Not Explode
Gibbons G.W.
Phys Rev 15D:3530 (1977).

230S Particle Physics Away From the High Energy Frontier
Glashow S.L.
in Proceedings on the XI International Symposium on Multiparticle Dynamics E. DeWolf and F. Verbeure Eds. (Antwerpen, Belgium 1980) p.701

231S Particle Physics Away From the High Energy Frontier
Glashow S.L.
Proceedings of the Scottish Universities Summer School (1980).

232H String-like Topological Excitations of the Electromagnetic Field
Gliozzi F.
Nucl Phys 141B:379 (1978).

233G Gauge Theories and Magnetic Charge
Goddard P., Nuyts J., Olive D.
Nucl Phys 125B:1 (1977).

234A Magnetic Monopoles and Related Objects
Goddard P.
in Topics in Quantum Field Theory and Gauge Theories, J.A. de Azcarraga Ed. (Springer-Verlag, Berlin 1978) p.1

235G Magnetic Monopoles in Gauge Field Theories
Goddard P., Olive D.
Rep Prog Phys 41:1357 (1978).

236G Interactions Between ´t Hooft-Polyakov Monopoles
Goldberg J.N., Jang P.S., Park S.Y., Wali K.C.
Phys Rev 18D:542 (1978).

237G Composite Magnetic Monopoles for SU(N) Spontaneously Broken to U(1)
Goldhaber A.S., Wilkinson D.
Nucl Phys 114B:317 (1976).

238N Contact with Hidden Magnetic Poles
Goldhaber A.S.
Stony Brook-SUNY-ITP-SB-79-96 (1979).

239A Dirac Particle in a Magnetic Field: Symmetries and their Breaking by Monopole Singularities
Goldhaber A.S.
Phys Rev 16D:1815 (1977).

240C Spin and Statistics Connection for Charge-Monopole Composites
Goldhaber A.S.
Phys Rev Lett 36:1122 (1977).

241F Gravitational Clumping and the Annihilation of Monopoles
Goldman T., Kolb E.W., Toussaint D.
Cal Tech-68-793 (1980).

242T Calculation of the Yang-Mills Vacuum Wave Functional
Greensite J.P.
Nucl Phys 158B:469 (1979).

243A Complex Line Bundles and the Magnetic Field of a Monopole
Greub W.H.
in Differential Geometrical Methods in Mathematical Physics, K. Bleuler et al. Eds. (Springer-Verlag, Berlin 1978) p.350

244T Light Quark Masses and Isospin Violation
Gross D.J., Treiman S.B., Wilczek F.
Phys Rev 19D:2188 (1979).

245G On Spherically Symmetric SU(2) Gauge Fields and Monopoles (in Chinese)
Gu C.H., Hu H.S.
Acta Phys Sinica 26:155 (1977).

246G Some Problems on the Gauge Field Theories. III
Gu C.H., Yang C.N.
Sci Sinica 20:177 (1977).

247Z Phase Transitions and Magnetic Monopole Production in the Very Early Universe
Guth A.H., Tye S.H.H.
Phys Rev Lett 44:631 (1980).

248Z Cosmological Consequences of a First Order Phase Transition in the SU(5) Grand Unified Model
Guth A.H., Weinberg E.J.
Phys Rev 23:876 (1981).

249Z Interaction of Black Holes with ´t Hooft-Polyakov Monopoles
Hajicek P.
Bern-80-0870 (1980).

250T Superconducting Properties of Pion Condensates
Harrington B.J., Shepard H.K.
Phys Rev 16D:3437 (1977).

251T Superconducting Properties of Pion Condensates II
Harrington B.J., Shepard H.K.
Phys Rev 19D:1713 (1979).

252N Magnetic Monopole Mobility Spectrometer
Hart F.X., Massey J.S.
Am J Phys 46:587 (1978).

253G Are Quarks Short Range Solitons?
Hasenfratz P., Ross D.A.
Phys Lett 64B:78 (1976). (erratum 74B:432 (1978).)

254D Classical Electrodynamics with Two Kinds of Charges
Hegedues E.
Seminar of Theoretical Physics (Timisoara 1978) p.94

255D Action-at-a-Distance Theory of Electrodynamics with Dirac´s Monopoles
Hirata K.
Phys Lett 83B:335 (1979).

256A Classical Lagrangian Theory of Dirac´s Monopole: Avoiding Dirac´s Veto
Hirata K.
Phys Lett 81B:169 (1979).

257A Van der Waals Interaction Between Spin > Particles
Hirata K., Nojima K.
Prog Theor Phys 55:1189 (1976).

258G Nambu Mechanics of Non-Abelian Dyons
Hirayama M., Tze H.C.
Phys Rev 17D:546 (1978).

259G Realization of Nambu Mechanics: A Particle Interacting with an SU(2) Monopole
Hirayama M.
Phys Rev 16D:530 (1977).

260M Possible Suppression of Cerenkov Emission in Closely- Collimated Jets. An Explanation of the ´Magnetic Monopole´ Event?
Hodson A.L.
in Fourteenth International Cosmic Ray Conference, (Munchen, Germany 1975) p.4065

261L A New Search for Magnetic Monopoles at the CERN-ISR with Plastic Detectors
Hoffmann H., Kantardjian G., Di Liberto S., Meddi F., Romano G., Rosa G.
Nuovo Cim Lett 23:357 (1978).

262G Fiber Bundle Structure of Gauge Field and Reduction by the Higgs Mechanism
Honda M.
Prog Theor Phys 63:1429 (1980).

263G Fiber Bundle Analysis of Global Feature of Gauge Field Theory
Honda M.
Prog Theor Phys 61:1255 (1979).

264E Birkhoff´s Theorem and Magnetic Monopole Solutions for a System of Generalized Einstein-Maxwell Field Equations
Horndeski G.W.
J Math Phys 19:668 (1978).

265G Extended Monopoles in Gauge Field Theories
Horvath Z., Palla L.
Trieste-ICTP-IC/77/35 (1977).

266U Grand Unified Schemes and Spontaneous Compactification
Horvath Z., Palla L., Cremmer E., Scherk J.
Nucl Phys 127B:57 (1977).

267U* Monopoles and Grand Unification Theories
Horvath Z., Palla L.
Phys Lett 69B:197 (1977).

268G Monopoles, Dyons and Other Topologically Stable Solutions in Gauge Theories
Horvath Z., Palla L.
Acta Phys Austr 46:297 (1977).

269G* On the Generalized Monopole Solutions in Gauge Theories
Horvath Z., Palla L.
Nucl Phys 116B:500 (1976).

270G Spontaneous Compactification and ´Monopoles´ in Higher Dimensions
Horvath Z., Palla L.
Nucl Phys 142B:327 (1978).

271A Classical Action, The Wu-Yang Phase Factor and Prequantization
Horvathy P.A.
CNRS Marseille-80/p.1182 (1980).

272A Rotational Symmetry and Dirac´s Monopole
Horvathy P.A.
CNRS Marseille-80/p.1190 (1980).

273A Conversion of Isospin Degree of Freedom into Spin Degree of Freedom
Hosoda M., Kozakai H.
Prog Theor Phys 59:2080 (1978).

274A On the Fermion-Boson Puzzle
Hosoda M., Kozakai H.
Prog Theor Phys 58:2008 (1977).

275G The Decomposition and Reduction of Gauge Field and Dual Charged Solution of Abelianizable Field
Hou B.Y., Duan Y.S., Ge M.L.
Sci Sinica 21:446 (1978).

276A On Axially-Symmetric Finite Energy Monopole Configurations
Houston P., O´Raifeartaigh L.
Dublin-DIAS-STP-80-28 (1980).

277A On the Charge Distribution of Static Axial and Mirror Symmetric Monopole Systems
Houston P., O´Raifeartaigh L.
Phys Lett 94B:153 (1980).

278A On Monopole Systems with Weak Axial Symmetry
Houston P., O´Raifeartaigh L.
Dublin-DIAS-STP-80-32 (1980).

279A On Monopoles with Axial and Mirror Symmetry
Houston P., O´Raifeartaigh L.
Dublin-DIAS-STP-79-35 (1979).

280G On the Zeros of the Higgs Field for Axially Symmetric Multi-monopole Configurations
Houston P., O´Raifeartaigh L.
Dublin-DIAS-STP-80-14 (1980).

281B Quasiclassical Quantization of the Magnetic Charge
Hrasko P.
Am J Phys 45:838 (1977).

282A Rotation Symmetry in the Hamiltonian Dynamics
Hrasko P., Balog J.
Nuovo Cim 45:239 (1978).

283G On the Supersymmetric Solitons and Monopoles
Hruby J.
Nucl Phys 162B:449 (1980).

284G On the Problem of Dual Charge (Magnetic Monopole) In Non-Abelian Gauge Groups
Hsien T.C., Kuo S.H., Lee H.C.
Sci Sinica 22:149 (1979).

285A Observable Phase Factors and Symmetry of Electric and Magnetic Charges
Hsu J.P.
NASA/Marshall-77-120 (1977).

286G Static Yang-Mills Field with a Finite Energy and its Physical Implications
Hsu J.P.
NASA/Marshall-77-112 (1978).

287G Symmetry and Exact Dyon Solutions for Classical Yang-Mills Field Equations
Hsu J.P., Mac E.
J Math Phys 18:100 (1977).

288G Flux Quantization and Angular Momentum in Non-Abelian Gauge Field Theories
Huang K., Stump D.R.
Phys Rev 15D:3660 (1977).

289G Particle Solutions in a Unified Field Theory
Huerta R., Parker B.
Phys Rev 19D:2853 (1979).

290A Magnetic Monopoles in the Presence of Quark Sources
Hughes R.J.
Nucl Phys 159B:67 (1979).

291G Magnetic Monopole, Vector Potential and Gauge Transformation
Ikeda M., Kawai T., Yoshida H.
Nuovo Cim Lett 20:227 (1977).

292B Charge Quantization in Curved Space-Time
Inomata A., Trinkala M.
Phys Rev 18D: 1861 (1978).

293E Spinor Fields in Four-Dimensional Space-Time
Isham C.J.
Proc R Soc (London) 364A:591 (1978).

294G Covariant Quantization of Soliton in Gauge Theories
Ishikawa K.
Prog Theor Phys 58:1283 (1977).

295A Dynamical Symmetry of the Magnetic Monopole
Jackiw R.
Mass Inst Tech-MIT-CTP-849 (1980).

296G Hidden Symmetry and the Periodicity in Gauge Theories
Jackiw R.
Santa Barbara-NSF-ITP-80-48 (1980).

297C Invariance, Symmetry of the Point Magnetic Monopole
Jackiw R.
in Field Theory and Strong Interactions, P. Urban Ed. (Springer-Verlag, Wein 1980) p.67

298A The Nature of Intrinsic Magnetic Dipole Moments
Jackson J.D.
CERN-77-17 (1977).

299B Magnetic Charge Quantization and Generalized Imprimitivity Systems
Jadczyk A.Z.
Int J Theor Phys 14:183 (1976).

300A Vortices and Monopoles
Jaffe A., Taubes C.
(Birkhauser, Boston 1980) 287pp

301A Concerning Axially Symmetric Monopole-type Solutions
Jang P.S., Park S.Y., Wali K.C.
Phys Rev 17D:1641 (1978).

302B* Flux Quantization and Particle Physics
Jehle H.
in Topics in Strong Interactions, A.O. Barut and W.E. Brittin Eds. (Colorado, Colorado 1972) p.399

303A Topology of Magnetic Fields in Particle Physics. Implications of the Quark Model
Jehle H.
Acta Phys (Austr Suppl) 18:63 (1977).

304G On the Monopole-Dyon System in Non-Abelian Gauge Theories
Jersak J., Kiera M., Magg M.
Nuovo Cim 40A:269 (1977).

305E Charged Particles in Einstein's Unified Field Theory
Johnson C.R. Nance J.R.
Phys Rev 15D:377 (erratum 16D:533) (1977).

306T Charged-Prong Multiplicity and Angular Distributions from Nucleon-Nucleus Interactions
Jones L.W., Longo M.J., Burke D., Vishwanath P.R.
Michigan-UM-HE-75-16 (1975).

307S A Review of Quark Search Experiments
Jones L.W.
Rev Mod Phys 49:717 (1977).

308T Quark Confinement
Joos H.
in Current Induced Reactions, J.G. Korner et al. Eds. (Springer-Verlag, Berlin 1976) p.428

309G Some Exact Dyon Solutions for the Classical Yang-Mills Field Equation
Ju I.
Phys Rev 17D:1637 (1978).

310G Magnetic Monopoles in a Gauge Field Theory from Vortex-Strings
Kalb M.
Phys Rev 17D:2713 (1978).

311H Statics for the Antisymmetric Tensor Potential Due to Closed Strings
Kalb M.
Nuovo Cim 29A:364 (1975).

312G Time-Independent Yang-Mills Statics
Kalb M.
Phys Rev 18D:2909 (1978).

313A Direct Action and Magnetic Monopoles
Kamat R.V.
Nuovo Cim 43B:141 (1978).

314D Electromagnetism with Magnetic Monopoles
Kamat R.V.
J Phys Educ 5:1 (1977).

315G Singular Gauge Transformations and Monopole Vortex-Line Systems
Kamata M.
Prog Theor Phys 59:1346 (1978).

316G Vortex Solutions and Quark Confinement in SU(3) Gauge Model
Kamata M.
Tsukuba-Preprint (1976).

317G Gauge Theory of Dual Resonance Models and Spontaneous Breaking
Karpf A.D.
Acta Phys (Austr Suppl) 15:591 (1976).

318A Dynamics of Electron-Monopole System
Kazama Y.
Int J Theor Phys 17:249 (1978).

319A Electric and Magnetic Dipole Moments of the Bound System of a Dirac Particle and a Fixed Magnetic Monopole
Kazama Y.
Phys Rev 16D:3078 (1977).

320A Existence of Bound States for a Charged Spin > Particle with an Extra Magnetic Moment in the Field of a Fixed Magnetic Monopole
Kazama Y., Yang C.N.
Phys Rev 15D:2300 (1977).

321A Investigations in Theoretical High Energy Physics
Kazama Y.
Stony Brook-SUNY-77-20,445 (1977).

322J Scattering of a Dirac Particle with Charge Ze by a Fixed Magnetic Monopole
Kazama Y., Yang C.N., Goldhaber A.S.
Phys Rev 15D:2287 (1977).

323Z Decay of the False Vacuum in the Early Universe
Kennedy A., Lazarides G., Shafi Q.
CERN-Th-2944 (1980).

324G Energy Levels of the Magnetic Monopole in the Prasad-Sommerfield Limit
Kerner R.
Phys Rev 19D:1243 (1979).

325G On the Uniqueness of the 't Hooft's Magnetic Monopole
Kerner R.
Lett Math Phys 2:49 (1977).

326G The Excited States of the Prasad-Sommerfield Solution and its SU(3) Generalization
Kerner R.
Phys Lett 81B:21 (1979).

327Z* Topology of Cosmic Domains and Strings
Kibble T.W.B.
J Phys 9A:1387 (1976).

328A $Tr(\tilde{F}F)$ for Dyons
Kim Y., Koh I.G., Park Y.J., Yoon S.H.
J Korean Phys Soc 13:1 (1980).

329Z Stationary Electromagnetic Sources Near a Black Hole
King A.R.
Nuovo Cim Lett 17:102 (1976).

330A Superconductivity and Elementary Particles (in Russian)
Kirzhnits D.A.
Usp Fiz Nauk 125:169 (1978).

331G U(1) Gauge Theories, Fiber Bundles, and Stereographic Projections in Two-Dimensions
Kiskis J.
Phys Rev 16D:2535 (1977).

332E Many-Body Equilibrium of Dual Charged Sources in General Relativity
Kobiske R.A., Parker L.
Phys Rev 16D:3355 (1977).

333E Solution of the Einstein-Maxwell Equations for Two Unequal Spinning Sources in Equilibrium (erratum)
Kobiske R.A., Parker L.
Phys Rev 11D:1714 (1975).

334A D*F for the SU(2) Wu-Yang Solutions
Koh I.G., Kim Y.
Sogang(Korea)-Preprint (1980).

335A Dyon with New Charge Distributions
Koh I.G., Kim Y.
Sogang(Korea)-Preprint (1980).

336A Global Quantity for Dyons with Various Charge Distributions
Koh I.G., Kim Y.
Trieste-ICTP-IC/80/88 (1978).

337N Stability and Linearity Control of Spectrometric Channels of the Cherenkov Counters Using Controllable Units (in Russian)
Kollar D., Kollarova L., Khorvat P.
Prib Tekh Eksp 87-89 (1976).

338A Classical Solutions for Field Equations (in Russian)
Konopelchenko B.G.
Yadern Fiz 26:1133 (1977).

339G Ansatz for Solutions with Higher Topological Charge
Kovacs E.
SLAC-2465 (1980).

340X Can Neutrinos be Bound States of Massive Supersymmetric Pairs
Krolikowski W.
Phys Lett 85B:335 (1979).

341A New Approach to the Theory of Magnetic Monopoles
Kruglov S.I., Strazhev V.I.
J Phys A13:L85 (1980).

342A On the Uniqueness of Monopole Solution
Kupiainen A., Byckling E.
Phys Lett 67B:80 (1977).

343F Gravitation and Magnetic Charge (erratum)
Kursunoglu B.
Phys Rev 12D:1850 (1975).

344G On the Consequences of Non-Linearity in a Unified Theory of Fundamental Interactions
Kursunoglu B.
in Theories and Experiments in High-Energy Physics, A. Perlmutter and S.M. Widmayer Eds. (Plenum, New York 1975) p.131

345D Conformal Invariance of Maxwell's Equations with Magnetic Charges
Kyriakopoulos E.
Int J Theor Phys 17:353 (1978).

346D Equations of a Massive Electrodynamics with Magnetic Charges
Kyriakopoulos E.
Phys Rev 16D:517 (1977).

347G Exact Dyon Solutions in SU(3) Gauge Theory
Kyriakopoulos E.
Nuovo Cim 52A:23 (1979).

348G The Classification of Monopoles in SU(2) and SU(3) Gauge Field Theories
Lake T.W.
J Phys 3G:441 (1977).

349U Grand Unified Theories Without Superheavy Magnetic Monopoles
Langacker P.
Pennsylvania-Preprint (1980).

350U Grand Unified Theories and Proton Decay
Langacker P.
SLAC-2544 (1980).

351U Magnetic Monopoles in Grand Unified Theories
Langacker P., Pi S-Y.
Phys Rev Lett 45:1 (1980).

352G Non-Uniqueness of the Source for Singular Gauge Fields
Lanyi G., Pappas R.
Phys Lett 68B:436 (1977).

353G Radial Yang-Mills Fields
Lanyi G.
Syracuse-77-0287 (1977).

354U Comments on "Monopole Charges in Unified Gauge Theories"
Lazarides G., Shafi Q.
CERN-Th-2958 (1980).

355Z The Fate of Primordial Magnetic Monopoles
Lazarides G., Shafi Q.
Phys Lett 94B:149 (1980).

356U Phase Transitions and Magnetic Monopoles in SO(10)
Lazarides G., Magg M., Shafi Q.
Phys Lett 97B:87 (1980).

357Z Superheavy Magnetic Monopole Hunt
Lazarides G., Shafi Q., Walsh T.F.
CERN-Th-3008 (1980).

358U Proton Lifetime and Fermion Masses in an SO(10) Model
Lazarides G., Shafi Q., Wetterich C.
Freiburg-THEP-80/2 (1980).

359G Properties of the Electromagnetic Soliton in the Unified Gauge Theory of Weak Electromagnetic Interactions
Lebrun J.P.
Liege-78-0379 (1978).

360G On the Problem of the Dual Charge (Magnetic Monopole) on Non-Abelian Groups II (in Chinese)
Lee H.C., Kuo S.H., Hsien T.C.
Phys Energ Fort Phys Nucl 2:23 (1978).

361A On Classical Angular Momentum of an Electron-Magnetic Monopole (in Chinese)
Lee T.P.
Phys Energ Fort Phys Nucl 2:378 (1978).

362G Examples of Four-Dimensional Soliton Solutions and Abnormal Nuclear States
Lee T.D.
Phys Rep 23C:254 (1976).

363R Magnetically Charged Particles (in Norwegian)
Leinaas J.M.
Fra Fys Verden 38:78 (1976).

364A A Mechanical Model of the Charge-Monopole System
Leinaas J.M.
Phys Scripta 17:483 (1978).

365C Statistics of Charge-Monopole System
Leinaas J.M.
Nuovo Cim 47A:19 (1978).

366E Motions of Electric Charges from Sub- and Super-luminal Sources in an Electromagnetic Field
Lemke H.
Nuovo Cim Lett 12:619 (1975).

367G Exact Monopole Solutions in Gauge Theories for an Arbitrary Semisimple Compact Group
Leznov A.N., Saveliev M.V.
Lett Math Phys 3:207 (1979).

368G On the Problem of the Dual Charge of Non-Abelian Gauge Groups. A Discussion on Magnetic Monopoles (in Chinese)
Li H.Z., Xian D.C., Guo S.H.
Acta Phys Sinica 25:507 (1976).

369G Derivation of Solution Quantization in Gauge Theories
Libby S.B.
Princeton-77-19,178 (1977).

370Z Confinement of Monopoles at High Temperatures
Linde A.D.
Lebedev-80-125 (1980).

371R Do Magnetic Monoples Exist?
Liu C., Chang S.
Wu-Li 5:32 (1976).

372A Magnetic Monopoles and Backlund Transformations
Lohe M.A.
Nucl Phys 142B:236 (1978).

373N On Searching for Very Massive Magnetic Monopoles
Longo M.J.
Michigan-UM-HE81-5 (1981).

374F Is Gravitational Dual Charge Physical?
Lubkin E.
Int J Theor Phys 16:551 (1977).

375G The Strict Equivalence of the Abelian Monopole and its Non-Abelian Stringless Counterpart by Use of Sections
Lugo V.A.
Phys Lett 66B:459 (1977).

376G Z_2 Monopoles in the Standard SU(2) Lattice Gauge Theory Model
Mack G., Petkova V.B.
DESY-79/22 (1979).

377F A Classification of SU_3 Magnetic Monopoles
Madore J.
Comm Math Phys 56:115 (1977).

378A Angular Momentum and Magnetic Charge
Madore J.
Phys Rev 17D:562 (1978).

379G On Axially Symmetric Solutions to the Higgs-Kibble-Yang-Mills Field Equations
Madore J.
Gen Rel Grav 8:655 (1977).

380Q Continous Injection Model for Hard x-ray Correlated Microwave Bursts
Maetzler C.
Solar Phys 49:117 (1976).

381A Classical Interactions of ´t Hooft Monopoles
Magruder S.F.
Phys Rev 17D:3257 (1978).

382A Some Non-Perturbative Results in Relativistic Field Theory (Ph.D. Thesis)
Magruder S.F.
Illinois-79-13,539 (1978).

383A Common Feature of Nonlinear Solvable Models
Mainland G.B., Takasugi E., Tanaka K.
Phys Rev 15D:3007 (1977).

384A Some Geometrical Aspects of Monopole Theories
Maison D., Orfanidis S.J.
Phys Rev 15D:3608 (1977).

385G Uniqueness of the Prasad-Sommerfield Monopole Solution
Maison D.
Max Planck-MPI-PAE/PTh-11/80 (1980).

386G Charge-Monopole Duality and the Phases of Non-Abelian Gauge Theories
Mandelstam S.
Phys Rev 19D:2391 (1979).

387F Gravitational Self-Interaction of the Electromagnetic Monopole and Dipole Field
Mankin R., Piir I.
Tartu-FAI-27 (1973).

388A Complex Structure of Monopoles
Manton N.S.
Nucl Phys 135B:319 (1978).

389G The Force Between ´t Hooft-Polyakov Monopoles
Manton N.S.
Nucl Phys 126B:525 (1977).

390A Monopoles and their Symmetries
Manton N.S.
Mass Inst Tech-MIT-CPT-867 (1980).

391G Magnetic Monopoles and Non-Abelian Gauge Theories
Marciano W.J.
Int J Theor Phys 17:275 (1978).

392G Multiply Charged Magnetic Monopoles, SU(3) Pseudoparticles and Gravitational Pseudoparticles
Marciano W.J., Pagels H., Parsa Z.
Phys Rev 15D:1044 (1977).

393G Introduction to the Fiber-Bundle Approach to Gauge Theories
Mayer M.E.
Irvine-Preprint (1976).

394G An Extended Vector Theory
Mckeon G.
Nucl Phys 147B:299 (1979).

395G Extended Yang-Mills Formalism
Mckeon G.
Phys Rev 16D:1836 (1977).

396G Self-Coupled Vector Fields
Mckeon G.
Can J Phys 56:1195 (1978).

397G Gauge Independent Formulation of Magnetic Monopoles
Mckeon G.
Phys Rev 17D:557 (1978).

398G Path-Integral Quantization of an Extended Yang-Mills System
Mckeon G.
Can J Phys 56:656 (1978).

399G A Time-Dependent Property of the Prasad-Sommerfield Monopole
Mecklenburg W., O'Brien D.P.
Phys Rev 18D: 1327 (1978).

400G Radially Separated Monopole Solutions in Non-Abelian Gauge Models
Michel L., O'Raifeartaigh L., Wali K.C.
Phys Rev 15D: 3641 (1977).

401A Group Theoretical Approach to Monopole Theories
Micu M.
Rev Roum Phys 22:427 (1977).

402F Continuity Equations for Transverse Multipole Amplitudes for Both the Electromagnetic and the Asymptotic Gravitational Field
Miglietta F.
Nuovo Cim 50A:466 (1979).

403F Infinite Conservation Laws for the Electromagnetic and the Asymptotic Gravitational Fields
Miglietta F., Ricci M.
Nuovo Cim 49A:93 (1979).

404A A Path-Dependent Approach to Colored Magnetic Monopoles
Mignani R.
Int J Theor Phys 16:425 (1977).

405E Duration Length Symmetry in Complex Three-Space and Interpreting Superluminal Lorentz Transformations
Mignani R., Recami E.
Nuovo Cim Lett 16:449 (1976).

406F Gravitational Analogues of Magnetic Monopoles from the Path-Dependent Formalism
Mignani R.
Nuovo Cim Lett 22:597 (1978).

407F Gravitational Monopoles
Mignani R.
Rome-54-7 (1977).

408F Path Dependent Approach to Gravitational Monopoles
Mignani R.
Nuovo Cim 56B:201 (1980).

409E Quaternions and Lorentz Transformations
Mignani R.
Rome-33-7 (1977).

410E Quaternions and Lorentz Transformations
Mignani R.
in Tachyons, Monopoles and Related Topics, E. Recami Ed.
(North-Holland, Amsterdam 1978) p.67

411F Strong Black Holes and Quark-Monopole Identification
Mignani R.
Nuovo Cim Lett 16:6 (1976).

412H Comments on Non-Observability of Strings
Milton K.A., DeRaad L.L.
Los Angeles-UCLA-77/TEP/2 (1977).

413A Dirac´s Monopole and the Hopf Map
Minami M.
Prog Theor Phys 62:1128 (1979).

414G Quaterionic Gauge Fields on S^7 and Yang´s SU(2) Monopole
Minami M.
Prog Theor Phys 63:303 (1980).

415L Genesis and the Physico-Chemical Aspect of the Search of the Relic Magnetic Monopoles (in Russian)
Mikhailov V.F.
Alma Ata-IFVE-74-79 (1979).

416F Group Properties of a Unified Theory of Gravitation and Electromagnetism
Moffat J.W.
Toronto-76-0100 (1975).

417G Magnetic Monopoles as Gauge Particles?
Montonen C., Olive D.
Phys Lett 72B:117 (1977).

418A Interaction of Leptons and Magnetic Monopoles
Moshir M.
Princeton-78-07,458 (1977).

419A Normalizable Solutions to the Dirac Equation in the Presence of a Magnetic Monopole
Mottola E.
Phys Rev 19D: 3170 (1979).

420G Zero Modes of the ´t Hooft-Polyakov Monopole
Mottola E.
Phys Lett 79B:242 (1978). (erratum 80B:433 (1979).)

421N Proposal to the SPSC Search for Magnetic Monopoles
Musset P., Aubert B., Price M., Vialle J.P.
CERN-SPSC/78-15 (1978).

422N Search for Magnetic Monopoles at the $\bar{p}p$ Colliding Ring
Musset P., Price M., Vialle J.P., Aubert B.
CERN - July (1977).

423G On Abelian Self-Dual Multimonopoles
Nahm W.
Phys Lett 93B:42 (1980).

424A Interacting Monopoles
Nahm W.
Phys Lett 85B:373 (1979).

425G The Interaction Energy of ´t Hooft Monopoles in the Prasad-Sommerfield Limit
Nahm W.
Phys Lett 79B:426 (1978).

426G A Simple Formalism for the BPS Monopole
Nahm W.
Phys Lett 90B:413 (1980).

427L Interaction Characteristics of Cosmic Ray Hadrons (in Russian)
Nam R.A., Nesterova N.M., Nikolskii S.I., Pavlyuchenko V.P., Romakhin V.A., Chubenko A.P., Yakolev V.I.
Izv Akad Nauk USSR 40:940 (1976).

428G Quantum Theory of the Dirac Field in the Presence of the Static Topological Monopole
Nakagawa N.
Tokyo-UT-329 (1979).

429H Monopoles, Strings and Instantons
Nambu Y.
Chicago-EFI-77/17 (1977).

430G Some Topological Configurations in Gauge Theories
Nambu Y.
Int J Theor Phys 17:287 (1978).

431H Stringlike Configurations in the Weinberg-Salam Theory
Nambu Y.
Nucl Phys 130B:505 (1977).

432G Topological Problems in Gauge Theories
Nambu Y.
Physica 96A:89 (1979).

433U Cosmological Implications of Grand Unified Theories
Nanopoulos D.V.
CERN-Th-2871 (1980).

434G Path Integral Quantization of Dirac String Lagrangian in $A^0 = 0$ Gauge
Narain K.S.
Phys Rev 20D:2555 (1979).

435L Elementary Particles and High Energy Phenomena. Progress Report
Nauenberg U., Bartlett D.F.
Colorado-COO-2144 (1977).

436G Stability of the Dirac Monopole Solutions of Classical Yang-Mills Theory (Ph.D. Thesis)
Neri F.
New York-NYU-79-12,301 (1978).

437H On Dirac Strings
Ni W.T., Yen H.C.
Chin J Phys 14:1 (1976).

438G A Quantum Liquid Model for the QCD Vacuum: Gauge and Rotational Invariance of Domained and Quantized Homogeneous Color Fields
Nielsen H.B., Olesen P.
Nucl Phys 160B:380 (1979).

439E Space-Time Dependence of the Magnetic and Electric Charges (in Portuguese)
Novello M., Salim J.M.
Cienc Cult 29:321 (1977).

440G Finite Energy Solutions of Gauge Theories
O'Raifeartaigh L.
Dublin-Preprint (1978).

441G* Gauge and Representation Independent Proof of the Guth-Weinberg Theorem
O'Raifeartaigh L.
Nuovo Cim Lett 18:205 (1977).

442A Mass Spectrum for Monopoles of Integral Isospin: Bag Model as the High Isospin Limit
O'Raifeartaigh L., Rawnsley J.
Phys Lett 72B:465 (1978).

443A Magnetic-Monopole Interactions
O´Raifeartaigh L., Park S.Y., Wali K.C.
Phys Rev 20:1941 (1979).

444G Dyons in the Weinberg-Salam Unified Gauge Theory
Oh C.H.
Prog Theor Phys 59:678 (1978).

445G A Note on Classical Solution for the ´t Hooft Monopole and the Julia-Zee Dyon
Oh C.H.
Phys Rev 18D:4817 (1978).

446T Quantum Theory of Path-Dependent Field Operator Based on Characteristics of Displacement Operators
Okabayashi T.
Fortsch Physik 24:619 (1976).

447R Magnetic Monopoles
Olive D.
Phys Rep 49:165 (1979).

448R Lectures on Magnetic Monopoles
Olive D.
Phys Rep 49:113 (1979).

449E Electric and Magnetic Charges as Extra Components of Four-Momentum
Olive D.
Nucl Phys 153B:1 (1979).

450A Magnetic Monopoles and Other Topological Objects in Quantum Field Theory
Olive D.
Trieste-ICTP/80/81-2 (1978).

451A Supersymmetric Solitons
Olive D.
Trieste-ICTP/77-78/26 (1978).

452T An Identity for T-Ordered Exponentials with Applications to Quantum Mechanics
Onofri E.
Annals Phys 102:371 (1976).

453G Topological Charges for N=4 Supersymmetric Gauge Theories and Monopoles of Spin-1
Osborn H.
Phys Lett 83B:321 (1979).

454A The O(4) Symmetry of the Hydrogen Atom with Magnetic Monopole and with Centrifugal Potential and its Green´s Function II (revised)
Ozaki S.
Preprint-75-0844 (1975).

455A The Dyon Green's Functions Based on the Analytic Representations of the Poincare Algebras III (revised)
Ozaki S.
Preprint-75-0845 (1975).

456A The Structure of Hadrons Based on Colored Dyons as Protoparticles I (revised)
Ozaki S.
Preprint-76-0717 (1976).

457A Quantum Field Theory of Magnetic Charges II: Two Dimensional Space Theory of Magnetic Monopoles
Ozaki S.
Preprint-77-1036 (1977).

458A Derivation of the Various Addition Theorems from a Global Method for Evaluating Green's Functions I (revised)
Ozaki S.
Preprint-59-0420 (1979).

459A Study of Fields Associated with Spin-1 Particles Carrying Electric and Magnetic Charges
Parkash O., Rajput B.S.
Ind J Phys 50:929 (1976).

460G A Mechanism for Confinement in 4 Dimensional Yang-Mills Theory
Parisi G.
Frascati-LNF-76/15-P (1976).

461A Non-Conventional Monopoles in Field Theory
Parisi G.
in Tachyons, Monopoles and Related Topics, E. Recami Ed.
(North-Holland, Amsterdam 1978) p.233

462P Cosmological Magnetic Fields
Parker E.N.
(Clarendon, Oxford 1979) 858pp

463A Topological Solutions in Physics
Parsa Z.
Am J Phys 47:56 (1979).

464G Some Topological Solitons: Vortices, Magnetic Monopoles and Instantons
Parsa Z.
Preprint-77-21,082 (1977).

465X Magnetism as the Origin of Preon-Binding
Pati J.C.
Trieste-ICTP-80-170 (1980).

466G* A Non-Abelian Vortex-Bond Model of Hadron
Patkos A.
Nucl Phys 129B:339 (1977).

467E Classical Euclidean Solutions
Patrascioiu A.
Phys Rev 15D:3051 (1977).

468R Search for Magnetic Monopoles
Pavlovic P.
Cesk Cas Fys 27:172 (1977).

469L Search for Tachyonic Monopoles (in Russian)
Perepelitsa V.F.
Moscow-ITEP-82 (1977).

470R* New Pathways in High Energy Physics: I. Magnetic Charge and Other Fundamental Approaches,
A. Perlmutter Ed.
(Plenum, New York 1976) 401pp

471G Mandelstamt-´t Hooft Duality in Abelian Lattice Models
Peskin M.E.
Annals Phys 113:122 (1978).

472A Theory of Magnetic Charge (in Russian)
Pestov A.B.
Dubna-JINR-P2-11630 (1978).

473U Suppression of Supperheavy Magnetic Monopoles in Grand Unified Theories
Pi S-Y.
SLAC-2584 (1980).

474R Discovery Claims, Ad Hominem Arguments and Research Programmes: Case Studies in Elementary Particle Physics
Pickering A.
Edinburgh-SSU-Preprint (1978).

475R The Hunting of the Quark. The Experimental Method in Science
Pickering A.
Edinburgh-SSU-Preprint (1979).

476N A Method for Unique Identification of Relativistic (>0.5) Magnetic Monopoles with a Fast Film Cherenkov Detector
Pinsky L.S., Hagstrom R.
in Fourteenth International Cosmic Ray Conference,
(Munchen, Germany 1975) p.4045

477T Classical and Quantum Theoretical Aspects of Solitons (in German)
Pohlmeyer K.
DESY-T-76/05-mc (1976).

478T Functional Integrals in Quantum Field Theory
Popov V.N.
CERN-TH-2424 (1977).

479G Construction of Exact Multimonopole Solutions
Prasad M.K., Rossi P.
Mass Inst Tech-MIT-Preprint (1980).

480G Construction of Exact Yang-Mills-Higgs Multimonopoles of Arbitrary Charge
Prasad M.K., Rossi P.
Mass Inst Tech-MIT-CTP-904 (1980).

481G Exact Yang-Mills-Higgs Monopole Solutions of Arbitrary Topological Charge
Prasad M.K.
Mass Inst Tech-Preprint (1980).

482G Instantons and Monopoles in Yang-Mills Gauge Field Theories
Prasad M.K.
Stony Brook-SUNY-ITP-SB-79-99 (1979).

483G Mirror Symmetry and Exact Multimonopole Solutions
Prasad M.K., Rossi P.
Mass Inst Tech-MIT-CTP-896 (1980).

484G Rigorous Construction of Exact Multimonopole Solutions
Prasad M.K., Rossi P.
Mass Inst Tech-MIT-CTP-903 (1980).

485G A Systematic Framework for Generating Multimonopole Solutions
Prasad M.K., Sinha A., Chau Wang L.L.
Stony Brook-SUNY-ITP-SB-80-73 (1980).

486T Static Fluid Spheres in Einstein-Cartan Theory
Prasanna A.R.
Phys Rev 11D:2076 (1975).

487Z Cosmological Production of Superheavy Magnetic Monopoles
Preskill J.P.
Phys Rev Lett 43:1365 (1979).

488K Addenda to the Paper on the Magnetic Monopole
Price P.B., Shirk E.D., Osborne W.Z., Pinsky L.S.
in Fourteenth International Cosmic Ray Conference, (Munchen, Germany 1975) p.4041

489L Further Measurements and Reassessment of the Magnetic Monopole Candidate
Price P.B., Shirk E.K., Osborne W.Z., Pinsky L.S.
Phys Rev 18D:1382 (1978).

490T Fermions in Field of the 't Hooft-Polyakov Monopole (in Russian)
Prokhvatilov E.V., Franke V.A.
Yadern Fiz 24:856 (1976).

491H On Solutions of the 'Finite Strings' Type in Classical Gauge Field Theories (in Russian)
Prokhvatilov E.V., Franke V.A.
Vestn Leningr U - Fiz 10:139 (1977).

492G Exact Classical Solutions of Yang-Mills Sourceless Equations
Protogenov A.P.
Phys Lett 67B:62 (1977).

493T Introduction to Gauge Theories of the Strong, Weak, and Electromagnetic Interactions
Quigg C.
Fermilab-Conf-80/64-THY (1978).

494T Field Theory of Extended Objects
Rajasekaran G.
Preprint (1976).

495D Symmetries of Generalized Electromagnetic Fields
Rajput B.S., Prakash O.
Ind J Pure Appl Phys 16:593 (1978).

496F Dual Charged Solution in Curved Space-time
Ramachandran R., Raval V.M.
Pramana 9:507 (1977).

497R Magnetic Monopole and Close Relatives
Ramachandran R.
Phys News 8:66 (1977).

498A Magnetic Monopole Solutions
Ramachandran R.
Proceedings of the III High Energy Physics Symposium, Bhubaneswar, India, Vol 2, 1977, 209-234

499P On the Possibility of Registration of Dirac Monopole by Nonlinear Effects in the Emission of Interstellar Masers
Rautian S.G., Safonov V.P., Smirnov G.I.
Phys Lett 70B:278 (1977).

500G Comment on the Magnetic Charge of Yang-Mills Fields with Large Internal Symmetry Group
Rawnsley J.H., Tchrakian D.H.
J Phys 10A:L87 (1977).

501A Spherically Symmetric Monopoles are Smooth
Rawnsley J.H.
J Phys 10A:L139 (1977).

502G Multimonopole Solutions in the Prasad-Sommerfield Limit
Rebbi C., Rossi P.
Phys Rev 22D:2010 (1980).

503T Solitons
Rebbi C.
Sci Amer 240:92 (1979).

504E About Tachyons and Magnetic Monopoles in Quantum Field Theory and Classical Physics
Recami E., Mignani R., Ziino G.
in Recent Developments in Relativistic Quantum Field Theory and its Applications Vol. II, W. Karwowski Ed. (Wroclaw, Poland 1976) p.267

505E Connection Between Magnetic Monopoles and Faster-Than-Light Speeds
Recami E., Mignani R.
Trieste-ICTP-IC/75/83 (1975).

506E A New Introductory View About Superluminal Frames and Tachyons
Recami E.
Catania-INFN-AE-78/2 (1978).

507A A New Approach and Experimental Outlook on Magnetic Monopoles
Recami E., Mignani R.
in The Uncertainty Principle and Foundations of Quantum Physics,
W.C. Price and S.S. Chissick Eds. (Wiley, London 1977) p.321

508E Tachyons, Monopoles and Related Topics,
E. Recami Ed. (North-Holland, Amsterdam 1978) 285pp

509G On Spherically Symmetric Fields in Gauge Theories
Romanov V.N., Schwarz A.S., Tyupkin Y.S.
Nucl Phys 130B:209 (1977).

510G Spherically Symmetric Solutions (in Russian)
Romanov V.N., Frolov I.V., Schwarz A.S.
Teor Mat Fiz 37:305 (1978).

511G A Consistency Check of Montonen-Olive's Conjecture
Rossi P.
Mass Inst Tech-MIT-CTP-756 (1979).

512G Fermion Zero Modes and 'Hidden' Symmetry
Rossi P.
Phys Lett 71B:145 (1977).

513G N=4 Supersymmetric Monopoles and the Vanishing of the β Function
Rossi P.
Mass Inst Tech-MIT-CTP-882 (1980).

514A Propogation Functions in the Field of a Monopole
Rossi P.
Nucl Phys 149B:170 (1979).

515A Spin > Particles in the Field of Monopoles
Rossi P.
Nucl Phys 127B:518 (1977).

516A Propagator in a Theory with Confinement
Roth R.
Nucl Phys 154B:21 (1979).

517A Comment on the Motion of a Spin > Particle in the Field of a Magnetic Monopole
Ruck H.M., Biedenharn L.C.
Phys Rev 20D:2089 (1979).

518D Clebsch Potentials in the Theory of Electromagnetic Fields
Admitting Electric and Magnetic Charge Distributions
Rund H.
J Mathematical Phys 18:84 (1977).

519A Connection Between the Spin Magnetic Moment of Electron and the
Dirac's Monopole (in Russian)
Ruzicka J.
Dubna-JINR-P2-11338 (1978).

520A Dirac Monopoles, Instantons and Hopf Maps
Ryder L.H.
Kent-78-1169 (1978).

521A Dirac Monopoles and the Hopf Map $S^3 \rightarrow S^2$
Ryder L.H.
J Phys 13A:437 (1980).

522G Topological Symmetry Breakdown and Quark Confinement
Stuart S.
Nucl Phys 154B:62 (1979).

523T Statistical Mechanics and Field Theory
Samuel S.A.
Lawrence Berkeley-LBL-9168 (1979).

524T Cherenkov Losses of a Relativistic Neutron in a Conducting
Medium
Sastry G.P., Parida B.K.
Z Naturforsch 32A:1126 (1977).

525B Allowed Values of the Quark Magnetic Charges in Dyon Models of
Hadrons
Satikov I., Strazhev V.
Sov J Nucl Phys 30:716 (1979).

526A Anomaly of the {-{ Phase Shift and the Strong Van der Waals
Interaction
Sawada T.
Tokyo-TUETP-75-16 (1975).

527A Discrepancies in Partial-Wave Dispersion Relations and a
Possible Strong Van der Waals Force
Sawada T.
Tsukuba-UTHEP-47 (1979).

528A Evidence for the Strong Van der Waals Force in the Hadron-Hadron
Scattering
Sawada T.
Prog Theor Phys 59:149 (1978).

529A Present Status of the Strong Van der Waals Force in the Hadron-Hadron Scattering
Sawada T.
Tsukuba- UTHEP-34 (1978).

530A Proposal to Confirm the Strong Van der Waals Interaction in Low Energy p-p Scattering
Sawada T.
Prog Theor Phys 59:149 (1978).

531A Separation of the Strong Van der Waals Interaction from the Nuclear Forces
Sawada T.
Tokyo-TUETP-75-13 (1975).

532A Can Low Energy Experiments Supply the Effective Information to Determine the Inner Structure of Hadrons?
Sawada T.
in Proceedings of the Tsukuba Symposium on Polarization Phenomena in Nuclear Reactions, K. Yagi Ed. (Tsukuba, Japan 1979) p.247

533G Exact Monopole Solutions for SO(3) Gauge Fields Coupled to f-g Theory
Sayed W.A.
Trieste-ICTP-IC/78/40 (1978).

534G Monopole Solutions for Strong Gravity Coupled to SO(3) Gauge Fields
Sayed W.A.
Phys Rev 20D:1465 (1979).

535U Aspects of Unified Gauge Theories
Shafi Q.
CERN-TH-2932 (1980).

536A A Theorem on the Existence of Dyon Solutions
Schechter M.
Serie Naranja: Investigaciones No 227 (1980).

537A Collinear Topological Monopoles and Topological Lines
Schiff H.
J Phys 11A:173 (1978).

538D A Manifestly Gauge-Invariant Hamiltonian Formulation of Classical Electrodynamics Including Magnetic Monopoles
Schlitt D.W.
Physica 91A:133 (1978).

539T Relativistic Interactions in Nuclei and the Approach to Scaling in Deep Inelastic Scattering
Schmidt I.A.
SLAC-203 (1977).

540A Dynamical Symmetry and Magnetic Charge
Schonfeld J.F.
Paris-LPTENS-79/25 (1979).

541A Topologically Nontrivial Solutions of Classical Equations and Their Role in Quantum Field Theory (in Russian)
Schwarz A.S.
in Nonlocal, Nonlinear and Nonrenormalizable Field Theories (Dubna, USSR 1976) p.224

542G On the Existence and Smoothness of Spherically Symmetric Monopole Solutions in Non-Abelian Gauge Theories
Scott D.M.
Trieste-ICTP/78-79/5 (1979).

543U The Masses of Monopoles in Grand Unified Theories
Scott D.M.
Nucl Phys 171B:109 (1980).

544U Monopoles in a Grand Unified Theory Based on SU(5)
Scott D.M.
Nucl Phys 171B:95 (1980).

545U On the Possibility of Magnetic Monopoles Lighter than $1/\alpha\ M_x$ in Grand Unified Theories
Scott D.M.
Cambridge-DAMTP-80/7 (1978).

546T The Electron as a Black Hole
Sekine M., Musha T.
Preprint (1975).

547G* The SO(3) Monopole Catalog
Shankar R.
Phys Rev 14D:1107 (1976).

548R Magnetic Monopoles: Retrospect and Prospect
Sharma S.P.
J Phys Educ 4:6 (1976).

549G Classical Yang-Mills Theory in the Presence of External Sources
Sikivie P., Weiss N.
Phys Rev 18D:3809 (1978).

550T Approaches to High Energy Physics
Singh V.
Phys News 7:78 (1976).

551G On Gauge Theory Monopole Solutions (Ph.D. Thesis)
Sinha A.
Columbia-78-19,434 (1978).

552G Lorentz Transformations for Gauge Theory Monopole Solutions
Sinha A.
Columbia-CU-TP-100 (1977).

553T Strong Spin-Two Interaction and General Relativity
Sivaram C., Sinha K.P.
Phys Rep 51:111 (1979).

554R Magnetic Monopoles: A Bibliography of Recent Research
SLAC Library Staff
SLAC-TN-75-014 (1975).

555J Electron Scattering on Dirac-Schwinger Monopole at Small Angles (in Russian)
Smolyakov N.V.
Serpukov-IHEP-80/11 (1980).

556T Neutrino as the Source of an Axial Electromagnetic Field
Slad L.M.
Sov J Nucl Phys 27:745 (1978).

557T Inhomogeneous Rotating Universes with Closed Timelike Geodesics of Matter
Soares I.D.
J Math Phys 21:521 (1980).

558A On the Theory of Dirac Magnetic Poles (in Russian)
Sokolov V.V.
Sov J Nucl Phys 26:224 (1977).

559A The Quantum Electromagnetic Field in Multiply Connected Space
Sorkin R.
J Phys Math 12A:403 (1979).

560A On the Relation Between Charge and Topology
Sorkin R.
J Phys 10A:717 (1977).

561U SU(5) Monopoles on the Lattice
Srednicki M., Susskind L.
Stanford-ITP-666 (1980).

562G Monopole and Vortex Disassociation and the Decay of the False Vacuum
Steinhardt P.J.
Harvard-HUTP-80/A088 (1980).

563G Resonances in SU(2) Gauge Theory
Stern A.
Phys Rev 15D:3672 (1977).

564X* Condensed Monopoles and Quark Confinement
Stone M., Thomas P.R.
Phys Rev Lett 41:351 (1978).

565G Continuum Gauge Theories
Stora R.
Cargese Summer Inst 1976:201 24pp

566C Galilean Invariance and Magnetic Charge
Strazhev V.I.
Int J Theor Phys 13:113 (1975).

567T Instantaneous Coulomb Interaction for a Long-range Background Field in Quantum Chromodynamics
Stump D.R.
Phys Rev 20D:1965 (1979).

568G Gauge Invariant Spinor Theory
Sugawara H.
in Proceedings of the Nineteenth International Conference on High Energy Physics, S. Homma et al. Eds. (PSJ, Tokyo 1978) p.581

569T QFD and Unification
Sugawara H.
KEK-TH-17 (1980).

570A Quarks and Magnetic Monopoles
Sugawara H.
in Proceedings of INS Winter Meeting on Particle Physics, Akama K. et al. Eds
Tokyo-INS-PT-29 (1976). p.93

571H Equation of Motion for String Operators in Quantum Chromodynamics
Suura H.
Phys Rev 20D:1412 (1979).

572T Charge Screening and Mass Spectrum
Swieca J.A.
Phys Rev 13D:312 (1976).

573G Magnetic Monopoles and Non-Abelian Gauge Groups
´t Hooft G.
in Group Theoretical Methods in Physics, A. Janner et al. Eds. (Springer-Verlag, Berlin 1976) p.3

574G Phase Transition Towards Permanent Quark Confinement
´t Hooft G.
Nucl Phys 138B:1 (1978).

575G A Property of Electric and Magnetic Flux in Non-Abelian Gauge Theories
´t Hooft G.
Nucl Phys 153B:141 (1979).

576U Monopoles and the Symmetry Breaking Pattern of a SO(10)-Based GUT. A Topological Argument
Tataru-Mihai P.
Max Planck-Preprint (1980).

577G On the Prasad-Sommerfield Dyon (Monopole) Solution
Tataru-Mihai P.
Max Planck-MPI-79-0483 (1979).

578G The Existence of Multi-monopole Solutions to the Non-Abelian Yang-Mills-Higgs Equations for Arbitrary Simple Gauge Groups
Taubes C.H.
Harvard-HUTMP 80/9 (1980).

579G The Existence of Multi-monopole Solutions to the Static SU(2) Yang-Mills-Higgs Equations in the Prasad-Sommerfield Limit
Taubes C.H.
Harvard-HUTMP 79/B94 (1979).

580Z Magnetic Monopoles and Cosmology
Tayler R.J.
Mon Not R Astr Soc 176:69P (1976).

581G Axially Symmetric Prasad-Sommerfield Monopole
Tchrakian D.H.
Kaiserslautern-DIAS-STP-79-12 (1979).

582G The Magnetic Charge of a Spherically Symmetric Class of SU(2) Monopoles
Tchrakian D.H.
Kaiserslautern-78-0531 (1978).

583G N-Dimensional Instantons and Monopoles
Tchrakian D.H.
J Math Phys 21:166 (1980).

584G ´t Hooft Electromagnetic Tensor for Higgs Fields of Arbitrary Isospin
Tchrakian D.H.
Phys Lett 91B:415 (1980).

585N Detection of Dirac Monopole with the Combination of Muon Burst Detector, Neutrino Detector and Core Detector (in Japanese)
Teramoto Y.
Uchusen Kenkyu 21:314 (1977).

586A Introductory Lectures on Fibre Bundles and Topology for Physicists
Thomas G.H.
Riv Nuovo Cim 3:(4) (1978).

587C Space-Reflection Operation and the Boson-Fermion Puzzle in a Dyonium Model
Tolkachev E.A., Tomil´chik L.M.
Phys Lett 81B:173 (1979).

588G Semiclassical Quantization for Gauge Theories
Tomboulis E., Woo G.
Mass Inst Tech-MIT-CTP-540 (1976).

589G ´t Hooft Monopoles Larger Gauge Groups
Toussaint D., Wilczek F.
Princeton-76-0989 (1976).

590I Speculations on the Production of Quarks and Monopoles
Trefil J.S.
Fermilab-TM-0268 (1970).

591A Solution of a Paradox Concerning the Motion of an Electric and a Magnetic Point Charge
Troost W.
Leuven-KUL-TF-78/006 (1978).

592Q Magnetic Poles and a Still Unexplained Phenomenon
Trower W.P.
in Particle Physics 1980, I. Andric et al. Eds. (North-Holland, Amsterdam 1980) p.485

593G A Short Introduction to the Mathematical Formulation of Gauge Theory
Tsou S.T.
Zakopane Poland 1978, Eighteenth Cracow School of Theoretical Physics (1978). 12pp

594A Interaction of Electrons, Magnetic Monopoles, and Photons. A I.
Tu T.S, Wu T.T., Yang C.N.
Sci Sinica 21:317 (1978).

595A Various Expressions for the Field Strengths of a Monopole with Different Velocities and the Integral Form of the Potential of a Monopole (in Chinese)
Tu T.S.
Phys Energ Fort Phys Nucl 2:49 (1978).

596G Axially Symmetric Magnetostatics in SU(2) Gauge Theory
Tucker R.W.
CERN-TH-2510 (1978).

597Z Monopoles, Phase Transitions and the Early Universe
Tye S.H.H.
in Proceedings of Guangzhou Conference on Theoretical Physics, N. Hu and H-Y. Tzu Eds. (Science Press, Beijing 1980) p.1452

598A The Non-Singular Vector Potential of a Magnetic Monopole in the Direction of Meridian (in Chinese)
Tzu T.P.
Phys Energ Fort Phys Nucl 2:93 (1978).

599G Dual Variables for Lattice Gauge Theories and the Phase Structure of Z(N) Systems
Ukawa A., Windey P., Guth A.H.
Phys Rev 21D:1013 (1980).

600N Experimental Search for Planck-Mass Particles
Ullman J.D., Epstein J., Motz L.
Bull Am Phys Soc 25:524 (1980).

601J Zeroth-Order Eikonal Approximation in Relativistic Charged Particle - Magnetic Monopole Scattering
Urrutia L.F.
Phys Rev 18D:3031 (1978).

602L Installation for Dirac Monopole Search on Vavilov-Cherenkov Radiation on the 70 GeV IHEP Proton Synchrotron (in Russian)
Vasilenko A.T., Zrelov V.P., Kollarova L.K.
Dubna-JINR-13-10074 (1976).

603G Quantum Theory of Polyakov- 't Hooft Monopole
Vergeles S.N., Khokhlachev S.B.
Sov J Nucl Phys 26:463 (1977).

604E Poincare Group and Magnetic Charge
Villarroel D.
in Group Theoretical Methods in Physics, R.T. Sharp and B. Kolman Eds. (Academic Press, New York 1977) p.507

605E Radiation Equation of Motion of a Relativistic Point Dyon
Villarroel D.
Chile-75-0967 (1975).

606G First-Order Phase Transitions in Gauge Theories
Viswanathan K.S., Yee J.H.
Phys Rev 19D:1906 (1979).

607G Topology of Vortices
Von Westenholz C.
Ann Inst Hen Poin 29:285 (1978).

608E Approach to Tachyon Monopoles in R^6 Space
Vysin V.
Nuovo Cim Lett 22:76 (1978).

609G Canonical Quantization of Non-Abelian Gauge Theory in the Schrodinger Picture: Applications to Monopoles and Instantons (Ph.D. Thesis)
Wadia S.R.
Michigan-UMI-79-13174 (1979).

610G Hamiltonian Formulation of Non-Abelian Gauge Theory with Surface Terms: Applications to the Dyon Solution
Wadia S.R.
Phys Rev 15D:3615 (1977).

611G On the Magnetic Monopole and Dipole Solution of the SU(N) Gauge Field Theory in a Curved Space (in Chinese)
Wang K.L., Hsien T.C., Cheng S.T.
Phys Energ Fort Phys Nucl 2:275 (1978).

612G On the SU(4) Monopole and Dyon Solutions (in Chinese)
Wang K.L., Hsien T.C., Cheng H.T.
Phys Energ Fort Phys Nucl 2:403 (1978).

613A The Bound State of a Monopole and a Spinor Field
Wang M.Z., Zheng X.T., Wang K.L., Xian D.C., Zhang Z.G.
Chengtu-CUST-PT-1980-2 (1980).

614A Spinor Monopole Solution is Possible
Wang M.C., Cheng H.T., Wang K.L., Chang C.K., Hsien T.C.
Phys Energ Fort Phys Nucl 2:35 (1978).

615G A Series of Sourceless Solution of SU(2) Gauge Fields - The SU(2) and U(1) Potential of Static Monopole Systems (in Chinese)
Wang Y.K., Chang K.Y., Hou B.Y
Phys Energ Fort Phys Nucl 2:368 (1978).

616G Existence of Monopoles in SU(3) Yang-Mills-Higgs Theories
Weder R.
Serie Naranja: Investigaciones 10:202 (1979).

617G Parameter Counting for Multimonopole Solutions
Weinberg E.J.
Phys Rev 20D:936 (1979).

618G Fundamental Monopoles and Multimonopole Solutions for Arbitrary Simple Gauge Groups
Weinberg E.J.
CERN-Th-2779 (1979).

619G Geometry and Interactions of Instantons
Wilczek F.
Princeton-76-0718 (1976).

620G Exact SU(N) Monopole Solutions with Spherical Symmetry
Wilkinson D., Bais F.A.
Phys Rev 19D:2410 (1978).

621G Monopole Bound States: An SU(4) Example
Wilkinson D.
Nucl Phys 125B:423 (1977).

622A Spherically Symmetric Monopoles
Wilkinson D., Goldhaber A.S.
Phys Rev 16D:1221 (1977).

623A Dyons of Charge $e\theta/2${
Witten E.
Phys Lett 86B:283 (1979).

624G Supersymmetry Algebras that Include Topological Charges
Witten E., Olive D.
Phys Lett 78B:97 (1978).

625A Some Properties of Monopole Harmonics
Wu T.T., Yang C.N.
Phys Rev 16D:1018 (1977).

626G Dual Charges of a Subgroup in Gauge Theories - Magnetic Monopoles of SU(2) and SO(3) Gauge Field (in Chinese)
Wu Y.S., Chen S., Tu T.S., Kuo H.Y.
Phys Energ Fort Phys Nucl 1:52 (1977).

627G A Principal-Bundle Treatment on the Monopoles in the Weinberg-Salam Theory
Wu Y.S.
in Proceedings of Guangzhou Conference on Theoretical Physics, N. Hu and H-Y. Tzu Eds. (Science Press, Beijing 1980) p.1200

628G The Structure of Principle Bundles for Dual Charges in Gauge Theories
Wu Y.S., Kuo H.Y.
Sci Sincica 20:186 (1977).

629G $U_2 \simeq SU_2 \times U_1$ Invariance of Principle Bundles for Magnetic Monopoles and its Physical Implications
Wu Y.S., Chen S., Kuo H.Y.
Sci Sinica 21:193 (1978).

630R Magnetic Monopoles
Yang C.N.
in Report on Fifth International Workshop on Weak Interactions with Very High-Energy Beams, Y. Tanikawa Ed. (Kobe, Japan 1977) p.7

631R Developments in the Theory of Magnetic Monopoles
Yang C.N.
in Proceedings of the Nineteenth International Conference on High Energy Physics, S. Homma et al. Eds. (PSJ, Tokyo 1978) p.497

632R Fiber Bundles and the Physics of the Magnetic Monopoles
Yang C.N.
CERN-Th-2725 (1979).

633G Generalization of Dirac´s Monopole to SU_2 Gauge Fields
Yang C.N.
J Math Phys 19:320 (1978).

634R Magnetic Monopoles, Gauge Fields and Fiber Bundles
Yang C.N.
Annals NY Aca Sci 294:86 (1977).

635R Magnetic Monopoles and Fiber Bundles
Yang C.N.
CERN-Th-2886 (1980).

636A SU_2 Monopole Harmonics
Yang C.N.
J Math Phys 19:2622 (1978).

637M A Possible, Consistent Identification of the Monopole Candidate of Price et al : A Highly Electrical ly Charged ´Quark´?
Yock P.M.C.
in Proceedings of the XVII Conference on High Energy Physics (Dubna, USSR 1976) p.N26

638G Condensation of Z(N) Monopoles
Yoneya T.
Hokkaido-EPHOU-78-16 (1979).

639G Monopole Condensation and Quark Confinement in a Weak Coupling SU(N) Lattice Gauge Model
Yoneya T.
Nucl Phys 153B:431 (1979).

640G Stability and Instability of the Wu-Yang Solution of Yang-Mills Field Equation
Yoneya T.
Phys Rev 16D:2567 (1977).

641G* Topology of Euclidean Yang-Mills Fields: Instantons and Monopoles
Yoneya T.
J Math Phys 18:1759 (1977).

642A Monopoles and Direct Action
Young K.
Nuovo Cim 35B:195 (1976).

643T Scattering of Light by Light - Prospects for High Order Interactions with Relatively Low Thresholds
Yueh W.R.
Opt Commun 22:315 (1977).

644X Charmed Hadrons, Electric Quarks and Magnetic Quarks
Zadoo T.K., Ahmad M.
Ind J Pure Appl Phys 17:152 (1979).

645A Classical Orbits of a Charged Particle in a Magnetic Monopole Field
Zia R.K.P.
Am J Phys 47:700 (1979).

646P On the Concentration of Relic Magnetic Monopoles in the Universe
Zeldovich Y.B., Khlopov M.Y.
Phys Lett 79B:239 (1978).

647G Monopole Harmonics for a Special Gauge
Zenaida E.S.
Int J Math & Math Sci 1:509 (1978).

648A The Maximal Time Symmetry of the Monopole
Zhu D.
Wisconsin-Preprint (1980).

649N On a Hypothetical Possibility of the Search for Dirac's Monopole
Zrelov V.P.
Dubna-JINR-D2-12289 (1979).

650N On Possible Improvement of Photographic Detector to Search for Dirac Monopole by Vavilov-Cherenkov Radiation
Zrelov V.P.
Nucl Inst Meth 153:145 (1978).

651L* Search for the Dirac Monopole by Means of Vavilov-Cherenkov Radiation at the 70 GeV IHEP
Zrelov V.P., Kollarova L., Kollar D., Lupiltsev V.P., Pavlovic P., Ruzicka J., Sidorova V.I., Shabashov M.F., Janik R.
Czech J Phys 26B:1306 (1976).

AUTHOR INDEX