

## List of Publications

YIGAL SHAMIR

### I. Articles:

- 1 A. Casher and Y. Shamir  
Dynamical supersymmetry breaking due to vacuum tunneling  
Phys. Rev. D **39**, 514-533 (1989)
- 2 A. Casher and Y. Shamir  
Instability of fermionic zero modes and dynamical supersymmetry violation  
Nucl. Phys. B **314**, 390-408 (1989)
- 3 A. Casher and Y. Shamir  
On the splitting of the monopole supermultiplet  
Phys. Rev. D **40**, 1356-1359 (1989)
- 4 Y. Shamir  
Strongly interacting chiral gauge theories  
Nucl. Phys. B **344**, 423-445, (1990)
- 5 Y. Shamir  
Chiral symmetry breaking in supersymmetric QCD  
Phys. Rev. Lett. **66**, 3101-3104 (1991)
- 6 Y. Shamir  
Supersymmetric QCD chiral symmetry breaking in the ladder approximation  
Nucl. Phys. B **352**, 469-488 (1991)
- 7 S. H. Park and Y. Shamir  
Parity conservation in (2+1)-dimensional QED with a four Fermi interaction  
Phys. Rev. D **44**, 3352-3355 (1991)
- 8 S. H. Park and Y. Shamir  
On topological symmetries and the Goldstone theorem  
Phys. Lett. B **258**, 179-182 (1991)
- 9 Y. Shamir  
Compensating fields and anomalies in supergravity  
Nucl. Phys. B **389**, 323-348 (1993)
- 10 A. Casher and Y. Shamir  
Supersymmetry violation in elementary particle – monopole scattering  
Phys. Lett. B **274**, 381-386 (1992)
- 11 Y. Shamir  
The Euclidean spectrum of Kaplan's lattice chiral fermions  
Phys. Lett. B **305**, 357-365 (1993)  
[arXiv:hep-lat/9212010]

- 12 Y. Shamir  
Chiral fermions from lattice boundaries  
Nucl. Phys. B **406**, 90-106 (1993)  
[arXiv:hep-lat/9303005]
- 13 Y. Shamir  
Constraints on the existence of chiral fermions in interacting lattice theories  
Phys. Rev. Lett. **71**, 2691-2694 (1993)  
[arXiv:hep-lat/9306023]
- 14 Y. Shamir  
Anomalies and chiral defects fermions  
Nucl. Phys. B **417**, 167-180 (1994)  
[arXiv:hep-lat/9310006]
- 15 V. Furman and Y. Shamir  
Axial symmetries in lattice QCD with Kaplan fermions  
Nucl. Phys. B **439**, 54-78 (1995)  
[arXiv:hep-lat/9405004]
- 16 M. Golterman and Y. Shamir  
Domain wall fermions in a waveguide: The phase diagram at large Yukawa coupling  
Phys. Rev. D **51**, 3026-3033 (1995)  
[arXiv:hep-lat/9409013]
- 17 M. Golterman and Y. Shamir  
The Relation between the waveguide and overlap implementations of Kaplan's domain wall fermions  
Phys. Lett. B **353**, 84-90 (1995)  
[Erratum-ibid. B **359**, 422 (1995)]  
[arXiv:hep-lat/9501035]
- 18 Y. Shamir  
The Standard Model from a new phase transition on the lattice  
Phys. Rev. D **57**, 132-146 (1998)  
[arXiv:hep-lat/9512019]
- 19 M. Golterman and Y. Shamir  
A gauge-fixing action for lattice gauge theories  
Phys. Lett. B **399**, 148-155 (1997)  
[arXiv:hep-lat/9608116]
- 20 W. Bock, M. Golterman and Y. Shamir  
Phase diagram of a lattice U(1) gauge theory with gauge fixing  
Phys. Rev. D **58**, 054506 (1998)  
[arXiv:hep-lat/9708019]

- 21 W. Bock, M. Golterman and Y. Shamir  
Lattice chiral fermions through gauge fixing  
Phys. Rev. Lett. **80**, 3444-3447 (1998)  
[arXiv:hep-lat/9709154]
- 22 W. Bock, M. Golterman and Y. Shamir  
Chiral fermions on the lattice through gauge fixing: Perturbation theory  
Phys. Rev. D **58**, 034501 (1998)  
[arXiv:hep-lat/9801018]
- 23 W. Bock, M. Golterman and Y. Shamir  
More on lattice BRST invariance  
Phys. Rev. D **58**, 097504 (1998)  
[arXiv:hep-lat/9803028]
- 24 Y. Shamir  
Reducing chiral symmetry violations in lattice QCD with domain-wall fermions  
Phys. Rev. D **59**, 054506 (1999)  
[arXiv:hep-lat/9807012]
- 25 W. Bock, M. Golterman, K. C. Leung and Y. Shamir  
Phase diagram and spectrum of gauge-fixed abelian lattice gauge theory  
Phys. Rev. D **62**, 034507 (2000)  
[arXiv:hep-lat/9911005]
- 26 Y. Shamir  
New domain-wall fermion actions  
Phys. Rev. D **62**, 054513 (2000)  
[arXiv:hep-lat/0003024]
- 27 W. Bock, M. Golterman, M. Ogilvie and Y. Shamir  
Nonperturbative gauge fixing and perturbation theory  
Phys. Rev. D **63**, 034504 (2001)  
[arXiv:hep-lat/0004017]
- 28 M. Golterman and Y. Shamir  
Overlap-Dirac fermions with a small hopping parameter  
JHEP **0009**, 006 (2000)  
[arXiv:hep-lat/0007021]
- 29 M. Golterman and Y. Shamir  
Fermion-number violation in regularizations that preserve fermion-number symmetry  
Phys. Rev. D **67**, 014501 (2003)  
[arXiv:hep-th/0202162]
- 30 M. Golterman and Y. Shamir  
Localization in lattice QCD  
Phys. Rev. D **68**, 074501 (2003)  
[arXiv:hep-lat/0306002]

- 31 M. Golterman and Y. Shamir  
SU(N) chiral gauge theories on the lattice  
Phys. Rev. D **70**, 094506 (2004)  
[arXiv:hep-lat/0404011]
- 32 M. Golterman, Y. Shamir and B. Svetitsky  
Mobility edge in lattice QCD  
Phys. Rev. D **71**, 071502 (2005)  
[arXiv:hep-lat/0407021]
- 33 M. Golterman and Y. Shamir  
Before sailing on a domain-wall sea  
Phys. Rev. D **71**, 034502 (2005)  
[arXiv:hep-lat/0411007]
- 34 Y. Shamir  
Locality of the fourth root of the staggered-fermion determinant:  
renormalization-group approach  
Phys. Rev. D **71**, 034509 (2005)  
[arXiv:hep-lat/0412014]
- 35 M. Golterman, Y. Shamir and B. Svetitsky  
Localization properties of lattice fermions with plaquette and improved gauge  
actions  
Phys. Rev. D **72**, 034501 (2005)  
[arXiv:hep-lat/0503037]
- 36 M. Golterman, T. Izubuchi and Y. Shamir  
The role of the double pole in lattice QCD with mixed actions  
Phys. Rev. D **71**, 114508 (2005)  
[arXiv:hep-lat/0504013]
- 37 M. Golterman and Y. Shamir  
Running couplings in equivariantly gauge-fixed SU(N) Yang-Mills theories  
Phys. Rev. D **73**, 014510 (2006)  
[arXiv:hep-lat/0511042]
- 38 M. Golterman, Y. Shamir and B. Svetitsky  
Breakdown of staggered fermions at nonzero chemical potential  
Phys. Rev. D **74**, 071501 (2006)  
[arXiv:hep-lat/0602026]
- 39 C. Bernard, M. Golterman, Y. Shamir and S. R. Sharpe  
Comment on 'Chiral anomalies and rooted staggered fermions'  
Phys. Lett. B **649**, 235 (2007)  
[arXiv:hep-lat/0603027]
- 40 C. Bernard, M. Golterman and Y. Shamir  
Observations on staggered fermions at non-zero lattice spacing  
Phys. Rev. D **73**, 114511 (2006)  
[arXiv:hep-lat/0604017]

- 41 Y. Shamir  
Renormalization-group analysis of the validity of staggered-fermion QCD with the fourth-root recipe  
Phys. Rev. D **75**, 054503 (2007)  
[arXiv:hep-lat/0607007]
- 42 M. Golterman and Y. Shamir  
The Tunneling Hybrid Monte-Carlo algorithm  
Phys. Rev. D **76**, 094512 (2007)  
[arXiv:0705.2928 [hep-lat]]
- 43 C. Bernard, M. Golterman, Y. Shamir and S. R. Sharpe  
't Hooft vertices, partial quenching, and rooted staggered QCD  
Phys. Rev. D **77**, 114504 (2008)  
[arXiv:0711.0696 [hep-lat]]
- 44 C. Bernard, M. Golterman and Y. Shamir  
Effective field theories for QCD with rooted staggered fermions  
Phys. Rev. D **77**, 074505 (2008)  
[arXiv:0712.2560 [hep-lat]]
- 45 Y. Shamir, B. Svetitsky and T. DeGrand  
Zero of the discrete beta function in SU(3) lattice gauge theory with color sextet fermions  
Phys. Rev. D **78**, 031502 (2008)  
[arXiv:0803.1707 [hep-lat]]
- 46 C. Bernard, M. Golterman, Y. Shamir and S. R. Sharpe  
Reply to: "Comment on: 't Hooft vertices, partial quenching, and rooted staggered QCD'"  
Phys. Rev. D **78**, 078502 (2008)  
[arXiv:0808.2056 [hep-lat]]
- 47 T. DeGrand, Y. Shamir and B. Svetitsky  
Phase structure of SU(3) gauge theory with two flavors of symmetric-representation fermions  
Phys. Rev. D **79**, 034501 (2009)  
[arXiv:0812.1427 [hep-lat]]
- 48 M. Golterman and Y. Shamir  
Algebraic renormalization of supersymmetric gauge theories with dimensional parameters  
Phys. Rev. D **82**, 105003 (2010)  
[arXiv:1004.3860 [hep-th]]
- 49 T. DeGrand, Y. Shamir and B. Svetitsky  
Running coupling and mass anomalous dimension of SU(3) gauge theory with two flavors of symmetric-representation fermions  
Phys. Rev. D **82**, 054503 (2010)  
[arXiv:1006.0707 [hep-lat]]

- 50 O. Bär, M. Golterman and Y. Shamir  
Flavor symmetry breaking in lattice QCD with a mixed action  
Phys. Rev. D **83**, 054501 (2011)  
[arXiv:1012.0987 [hep-lat]]
- 51 Y. Shamir, B. Svetitsky and E. Yurkovsky  
Improvement via hypercubic smearing in triplet and sextet QCD  
Phys. Rev. D **83**, 097502 (2011)  
[arXiv:1012.2819 [hep-lat]]
- 52 T. DeGrand, Y. Shamir and B. Svetitsky  
Infrared fixed point in SU(2) gauge theory with adjoint fermions  
Phys. Rev. D **83**, 074507 (2011)  
[arXiv:1102.2843 [hep-lat]]
- 53 T. DeGrand, Y. Shamir and B. Svetitsky  
Mass anomalous dimension in sextet QCD  
Phys. Rev. D **87**, 074507 (2013)  
[arXiv:1201.0935 [hep-lat]]
- 54 T. DeGrand, Y. Shamir and B. Svetitsky  
SU(4) lattice gauge theory with decuplet fermions: Schrödinger functional analysis  
Phys. Rev. D **85**, 074506 (2012)  
[arXiv:1202.2675 [hep-lat]]
- 55 M. Golterman and Y. Shamir  
Phase with no mass gap in nonperturbatively gauge-fixed Yang-Mills theory  
Phys. Rev. D **87**, no. 5, 054501 (2013)  
[arXiv:1210.4284 [hep-lat]]
- 56 T. DeGrand, Y. Shamir and B. Svetitsky  
Near the sill of the conformal window: gauge theories with fermions in two-index representations  
Phys. Rev. D **88**, no. 5, 054505 (2013)  
[arXiv:1307.2425 [hep-lat]]
- 57 M. Golterman and Y. Shamir  
Vacuum alignment and lattice artifacts: Wilson fermions  
Phys. Rev. D **89**, 054501 (2014)  
[arXiv:1401.0356 [hep-lat]]
- 58 M. Golterman and Y. Shamir  
Vacuum alignment and lattice artifacts: staggered fermions  
Phys. Rev. D **89**, 074502 (2014)  
[arXiv:1401.3151 [hep-lat]]

- 59 M. Golterman and Y. Shamir  
Dimensional transmutation in the longitudinal sector of equivariantly gauge-fixed Yang-Mills theory  
Phys. Rev. D **90**, 034504 (2014)  
[arXiv:1403.3510 [hep-lat]]
- 60 O. Raviv, Y. Shamir and B. Svetitsky  
Non-perturbative beta function in three-dimensional electrodynamics  
Phys. Rev. D **90**, 014512 (2014)  
[arXiv:1405.6916 [hep-lat]]
- 61 T. DeGrand, Y. Shamir and B. Svetitsky  
Suppressing dislocations in normalized hypercubic smearing  
Phys. Rev. D **90**, no. 5, 054501 (2014)  
[arXiv:1407.4201 [hep-lat]]
- 62 T. DeGrand, Y. Liu, E. T. Neil, Y. Shamir and B. Svetitsky  
Spectroscopy of SU(4) gauge theory with two flavors of sextet fermions  
Phys. Rev. D **91**, 114502 (2015)  
[arXiv:1501.05665 [hep-lat]]
- 63 M. Golterman and Y. Shamir  
Top quark induced effective potential in a composite Higgs model  
Phys. Rev. D **91**, no. 9, 094506 (2015)  
[arXiv:1502.00390 [hep-ph]]
- 64 T. DeGrand and Y. Shamir  
One-loop anomalous dimension of top-partner hyperbaryons in a family of composite Higgs models  
Phys. Rev. D **92**, no. 7, 075039 (2015)  
[arXiv:1508.02581 [hep-ph]]
- 65 M. Golterman and Y. Shamir  
Low-energy effective action for pions and a dilatonic meson  
Phys. Rev. D **94**, no. 5, 054502 (2016)  
[arXiv:1603.04575 [hep-ph]]
- 66 T. DeGrand, M. Golterman, E. T. Neil and Y. Shamir  
One-loop Chiral Perturbation Theory with two fermion representations  
Phys. Rev. D **94**, no. 2, 025020 (2016)  
[arXiv:1605.07738 [hep-ph]]
- 67 T. A. DeGrand, M. Golterman, W. I. Jay, E. T. Neil, Y. Shamir and B. Svetitsky  
Radiative contribution to the effective potential in composite Higgs models from lattice gauge theory  
Phys. Rev. D **94**, no. 5, 054501 (2016)  
[arXiv:1606.02695 [hep-lat]]

**II. Invited talks:**

- 1 Y. Shamir  
Lattice chiral fermions  
Invited plenary talk, *Lattice 1995*, Melbourne, Australia  
Nucl. Phys. Proc. Suppl. **47**, 212-227 (1996)  
[arXiv:hep-lat/9509023]
- 2 W. Bock, M. Golterman and Y. Shamir  
Gauge-fixing approach to lattice chiral gauge theories  
Invited plenary talk, *Lattice 1997*, Edinburgh, Scotland  
Nucl. Phys. Proc. Suppl. **63**, 147-152 (1998)  
[arXiv:hep-lat/9709113]
- 3 M. Golterman and Y. Shamir  
Localization in lattice QCD (with emphasis on practical implications)  
Invited plenary talk, *Lattice 2003*, Tsukuba, Japan  
Nucl. Phys. Proc. Suppl. **129**, 149-155 (2004)  
[arXiv:hep-lat/0309027]



**III. Papers presented at scientific meetings:**

- 1 M. Golterman and Y. Shamir  
Why the overlap formula does not lead to chiral fermions  
Presented at *Lattice 1995*, Melbourne, Australia  
Nucl. Phys. Proc. Suppl. **47**, 603-606 (1996)  
[arXiv:hep-lat/9509027]
- 2 Y. Shamir  
Lattice chiral gauge theories in a renormalizable gauge  
Presented at *Lattice 1996*, St. Louis, MO, USA  
Nucl. Phys. Proc. Suppl. **53**, 664-667 (1997)  
[arXiv:hep-lat/9608117]
- 3 W. Bock, M. Golterman and Y. Shamir  
Gauge-fixing approach to lattice chiral gauge theories II  
Presented at *Lattice 1997*, Edinburgh, Scotland  
Nucl. Phys. Proc. Suppl. **63**, 581-586 (1998)  
[arXiv:hep-lat/9709115]
- 4 W. Bock, M. Golterman and Y. Shamir  
Gauge-fixing approach to lattice chiral gauge theories  
Presented at 31st International Ahrenschoop Symposium on the Theory of  
Elementary Particles, Buckow, Germany, Sep. 1997  
In *Buckow 1997, Theory of elementary particles*, 259-264  
[arXiv:hep-lat/9804015]
- 5 W. Bock, M. Golterman, K. C. Leung and Y. Shamir  
New tests of the gauge-fixing approach to lattice chiral gauge theories  
Presented at *Lattice 1999*, Pisa, Italy  
Nucl. Phys. Proc. Suppl. **83**, 603-608 (2000)  
[arXiv:hep-lat/9909114]
- 6 W. Bock, M. Golterman, K. C. Leung and Y. Shamir  
Abelian and nonabelian lattice chiral gauge theories through gauge fixing  
Contributed to NATO Advanced Research Workshop on Lattice Fermions  
and Structure of the Vacuum, Dubna, Russia, Oct 1999  
In *Dubna 1999, Lattice fermions and structure of the vacuum*, 137-151  
[arXiv:hep-lat/9912025]
- 7 Y. Shamir  
Better domain-wall fermions  
Contributed to NATO Advanced Research Workshop on Lattice Fermions  
and Structure of the Vacuum, Dubna, Russia, Oct 1999  
In *Dubna 1999, Lattice fermions and structure of the vacuum*, 27-39  
[arXiv:hep-lat/9912027]

- 8 M. Golterman and Y. Shamir  
Lattice chiral gauge theories through gauge fixing  
Contributed to NATO Advanced Research Workshop on Confinement, Topology, and other Nonperturbative Aspects of QCD, Stara Lesna, Slovakia, Jan 2002  
Published in *Nagoya 2002, Strong coupling gauge theories and effective field theories*, 206-212  
[arXiv:hep-lat/0205001]
- 9 Y. Shamir and M. Golterman  
Non-perturbative BRST invariance and what it might be good for  
Presented at *Lattice 2002*, Boston, Massachusetts  
Nucl. Phys. Proc. Suppl. **119**, 971-973 (2003)  
[arXiv:hep-lat/0209003]
- 10 M. Golterman and Y. Shamir  
SU(N) chiral gauge theories on the lattice: A quick overview  
Nucl. Phys. Proc. Suppl. **140**, 671 (2005)  
[arXiv:hep-lat/0409052]
- 11 B. Svetitsky, Y. Shamir and M. Golterman  
Localization of lattice fermions: Lessons for overlap  
PoS **LAT2005**, 129 (2006)  
[arXiv:hep-lat/0508015]
- 12 Y. Shamir  
Renormalization-group blocking the fourth root of the staggered determinant  
PoS **LAT2005**, 240 (2006)  
[Nucl. Phys. Proc. Suppl. **153**, 291 (2006)] [arXiv:hep-lat/0509163]
- 13 M. Golterman, T. Izubuchi and Y. Shamir  
Double poles in Lattice QCD with mixed actions  
PoS **LAT2005**, 082 (2006)  
[Nucl. Phys. Proc. Suppl. **153**, 135 (2006)] [arXiv:hep-lat/0509190]
- 14 B. Svetitsky, Y. Shamir and M. Golterman  
Why (staggered fermions)<sup>1/4</sup> fail at finite density  
PoS **LAT2006**, 148 (2006)  
[arXiv:hep-lat/0609051]
- 15 C. Bernard, M. Golterman and Y. Shamir  
Regularizing QCD with staggered fermions and the fourth root trick  
PoS **LAT2006**, 205 (2006)  
[arXiv:hep-lat/0610003]
- 16 C. Bernard, M. Golterman and Y. Shamir  
Effective field theories for rooted staggered fermions  
PoS **LAT2007**, 263 (2007)  
[arXiv:0709.2180 [hep-lat]]

- 17 B. Svetitsky, Y. Shamir and T. DeGrand  
Nonperturbative infrared fixed point in sextet QCD  
PoS **LAT2008**, 062 (2008)  
[arXiv:0809.2885 [hep-lat]]
- 18 T. DeGrand, Y. Shamir and B. Svetitsky  
Exploring the phase diagram of sextet QCD  
PoS **LAT2008**, 063 (2008)  
[arXiv:0809.2953 [hep-lat]]
- 19 B. Svetitsky, Y. Shamir and T. DeGrand  
Sextet QCD: slow running and the mass anomalous dimension  
PoS **LAT2010**, 072 (2010)  
[arXiv:1010.3396 [hep-lat]]
- 20 O. Bär, M. Golterman and Y. Shamir  
Flavor symmetry breaking in mixed-action QCD  
PoS **LAT2011**, 242 (2011)  
[arXiv:1110.2715 [hep-lat]]
- 21 Y. Shamir  
Running coupling from gluon exchange in the Schrödinger functional  
PoS **LAT2011**, 089 (2011)  
[arXiv:1110.6046 [hep-lat]]
- 22 T. DeGrand, Y. Shamir and B. Svetitsky  
Gauge theories with fermions in the two-index symmetric representation  
PoS **LAT2011**, 060 (2011)  
[arXiv:1110.6845 [hep-lat]]
- 23 T. DeGrand, Y. Shamir and B. Svetitsky  
Gauge theories with fermions in two-index representations  
PoS **LAT2013**, 064 (2013)  
[arXiv:1310.2128 [hep-lat]]
- 24 M. Golterman and Y. Shamir  
A possible new phase in non-perturbatively gauge-fixed Yang-Mills theory  
PoS **LAT2013**, 336 (2013)  
[arXiv:1310.5301 [hep-lat]]
- 25 B. Svetitsky, O. Raviv and Y. Shamir  
Beta function of three-dimensional QED  
PoS **LATTICE 2014**, 051 (2014)  
[arXiv:1410.0118 [hep-lat]]
- 26 M. Golterman and Y. Shamir  
Vacuum alignment and lattice artifacts,  
PoS **LATTICE 2014**, 156 (2014)  
[arXiv:1410.7992 [hep-lat]]

- 27 T. DeGrand, Y. Liu, E. T. Neil, Y. Shamir and B. Svetitsky  
Spectroscopy of SU(4) lattice gauge theory with fermions in the two index anti-symmetric representation  
PoS LATTICE **2014**, 275 (2014)  
[arXiv:1412.4851 [hep-lat]]
- 28 M. Golterman and Y. Shamir  
Effective field theory for pions and a dilatonic meson  
PoS LATTICE **2016**, 205 (2016)  
arXiv:1610.01752 [hep-ph]
- 29 T. A. DeGrand, M. Golterman, W. I. Jay, E. T. Neil, Y. Shamir and B. Svetitsky  
Radiative contribution to the effective potential in a composite Higgs model  
PoS LATTICE **2016**, 216 (2016)  
arXiv:1610.06121 [hep-lat]
- 30 T. A. DeGrand, D. Hackett, W. I. Jay, E. T. Neil, Y. Shamir and B. Svetitsky  
Towards Partial Compositeness on the Lattice: Baryons with Fermions in Multiple Representations  
PoS LATTICE **2016**, 219 (2016)  
arXiv:1610.06465 [hep-lat]