

MATTHEW B. WINGATE – Publications

1 Refereed Articles and Letters

1. “Unquenched determination of the kaon parameter B_K from improved staggered fermions”
E. Gamiz, S. Collins, C. T. H. Davies, G. P. Lepage, J. Shigemitsu and M. Wingate [HPQCD Collaboration]
[Phys. Rev. D **73**, 114502 \(2006\)](#) [arXiv:hep-lat/0603023] [SPIRES entry](#)
2. “ B meson semileptonic form factors from unquenched lattice QCD”
E. Gulez, A. Gray, M. Wingate, C.T.H. Davies, G.P. Lepage, and J. Shigemitsu
[Phys. Rev. D **73**, 074502 \(2006\)](#) [arXiv:hep-lat/0601021] [SPIRES entry](#)
3. “General coordinate invariance and conformal invariance in nonrelativistic physics: Unitary Fermi gas”
D. T. Son and M. Wingate
[Annals of Physics **321**, 197 \(2006\)](#) [arXiv:cond-mat/0509786] [SPIRES entry](#)
4. “The B Meson Decay Constant from Unquenched Lattice QCD”
A. Gray, M. Wingate, C. T. H. Davies, E. Gulez, G. P. Lepage, Q. Mason, M. Nobes, and J. Shigemitsu
[Phys. Rev. Lett. **95**, 212001 \(2005\)](#) [arXiv:hep-lat/0507015] [SPIRES entry](#)
5. “The Upsilon spectrum and m_b from full lattice QCD”
A. Gray, I. Allison, C. T. H. Davies, E. Gulez, G. P. Lepage, J. Shigemitsu and M. Wingate
[Phys. Rev. D **72**, 094507 \(2005\)](#) [arXiv:hep-lat/0507013] [SPIRES entry](#)
6. “First determination of the strange and light quark masses from full lattice QCD”
C. Aubin *et al.* [HPQCD/MILC/UKQCD Collaborations]
[Phys. Rev. D **70**, 031504 \(2004\)](#) [arXiv:hep-lat/0405022] [SPIRES entry](#)
7. “One-loop matching of the heavy-light A_0 and V_0 currents with NRQCD heavy and improved naive light quarks”
E. Gulez, J. Shigemitsu and M. Wingate
[Phys. Rev. D **69**, 074501 \(2004\)](#) [arXiv:hep-lat/0312017] [SPIRES entry](#)
8. “The B_s and D_s decay constants in 3 flavor lattice QCD”
M. Wingate, C. T. H. Davies, A. Gray, G. P. Lepage and J. Shigemitsu
[Phys. Rev. Lett. **92**, 162001 \(2004\)](#) [arXiv:hep-ph/0311130] [SPIRES entry](#)
9. “High-precision lattice QCD confronts experiment”
C. T. H. Davies *et al.* [HPQCD Collaboration]
[Phys. Rev. Lett. **92**, 022001 \(2004\)](#) [arXiv:hep-lat/0304004] [SPIRES entry](#)
10. “Heavy-light mesons with staggered light quarks”
M. Wingate, J. Shigemitsu, C. T. H. Davies, G. P. Lepage and H. D. Trotter
[Phys. Rev. D **67**, 054505 \(2003\)](#) [arXiv:hep-lat/0211014] [SPIRES entry](#)

11. **“Kaon matrix elements and CP-violation from quenched lattice QCD. I: The 3-flavor case”**
T. Blum *et al.* [RBC Collaboration]
[Phys. Rev. D **68**, 114506 \(2003\)](#) [arXiv:hep-lat/0110075] [SPIRES entry](#)
12. **“Non-perturbative renormalisation of domain wall fermions: Quark bilinears”**
T. Blum *et al.* [RBC Collaboration]
[Phys. Rev. D **66**, 014504 \(2002\)](#) [arXiv:hep-lat/0102005] [SPIRES entry](#)
13. **“Quenched lattice QCD with domain wall fermions and the chiral limit”**
T. Blum *et al.* [RBC Collaboration]
[Phys. Rev. D **69**, 074502 \(2004\)](#) [arXiv:hep-lat/0007038] [SPIRES entry](#)
14. **“Deconfinement transition and string tensions in SU(4) Yang-Mills theory”**
M. Wingate and S. Ohta
[Phys. Rev. D **63**, 094502 \(2001\)](#) [arXiv:hep-lat/0006016] [SPIRES entry](#)
15. **“Calculation of the strange quark mass using domain wall fermions”**
T. Blum, A. Soni and M. Wingate
[Phys. Rev. D **60**, 114507 \(1999\)](#) [arXiv:hep-lat/9902016] [SPIRES entry](#)
16. **“Lattice determination of heavy-light decay constants”**
C. W. Bernard *et al.*
[Phys. Rev. Lett. **81**, 4812 \(1998\)](#) [arXiv:hep-ph/9806412] [SPIRES entry](#)
17. **“Exotic mesons in quenched lattice QCD”**
C. W. Bernard *et al.* [MILC Collaboration]
[Phys. Rev. D **56**, 7039 \(1997\)](#) [arXiv:hep-lat/9707008] [SPIRES entry](#)
18. **“QCD thermodynamics with an improved lattice action”**
C. W. Bernard *et al.* [MILC Collaboration]
[Phys. Rev. D **56**, 5584 \(1997\)](#) [arXiv:hep-lat/9703003] [SPIRES entry](#)
19. **“The equation of state for two flavor QCD at $N_t = 6$ ”**
C. W. Bernard *et al.* [MILC Collaboration]
[Phys. Rev. D **55**, 6861 \(1997\)](#) [arXiv:hep-lat/9612025] [SPIRES entry](#)
20. **“Which chiral symmetry is restored in high temperature QCD?”**
C. W. Bernard *et al.*
[Phys. Rev. Lett. **78**, 598 \(1997\)](#) [arXiv:hep-lat/9611031] [SPIRES entry](#)
21. **“Improving flavor symmetry in the Kogut-Susskind hadron spectrum”**
T. Blum *et al.*
[Phys. Rev. D **55**, 1133 \(1997\)](#) [arXiv:hep-lat/9609036] [SPIRES entry](#)
22. **“Properties of the a_1 meson from lattice QCD”**
M. Wingate, T. DeGrand, S. Collins and U. M. Heller
[Phys. Rev. Lett. **74**, 4596 \(1995\)](#) [arXiv:hep-ph/9502274] [SPIRES entry](#)
23. **“From spectroscopy to the strong coupling constant with heavy Wilson quarks”**
M. Wingate, T. DeGrand, S. Collins and U. M. Heller
[Phys. Rev. D **52**, 307 \(1995\)](#) [arXiv:hep-lat/9501034] [SPIRES entry](#)

2 Invited Reviews

24. “***B* Physics on the Lattice: Present and Future**”
Matthew Wingate
Mod. Phys. Lett. A **21**, 1167 (2006) [[arXiv:hep-ph/0604254](#)] [SPIRES entry](#)
25. “**Status of lattice flavor physics**”
M. Wingate
Nucl. Phys. Proc. Suppl. **140**, 68 (2005) [[arXiv:hep-lat/0410008](#)]
Invited talk delivered at the 22nd International Symposium on Lattice Field Theory (Lattice 2004), Batavia, Illinois, 21-26 Jun 2004 [SPIRES entry](#)
26. “**Lattice QCD and flavor physics**”
Matthew Wingate
eConf **C0406271**, TUET01 (2004) [[arXiv:hep-ph/0409099](#)]
Invited talk at the XXIV Physics in Collision Conference (PIC04), Boston, USA, 27-29 June 2004 [SPIRES entry](#)

3 Preprints

27. “**Critical temperature for fermion pairing using lattice field theory**”
M. Wingate
[arXiv:cond-mat/0502372](#) [SPIRES entry](#)

4 Conference Proceedings – Selected Contributions

28. “***B* semileptonic decays with 2+1 dynamical quark flavors**”
E. Gulez, C. Davies, A. Gray, P. Lepage, J. Shigemitsu and M. Wingate
[arXiv:hep-lat/0510002](#)
29. “***B* Decays on the Lattice and Results for Phenomenology**”
M. Wingate, C. Davies, A. Gray, E. Gulez, J. Shigemitsu and G.P. Lepage
Int. J. Mod. Phys. A **20**, 3651 (2005) [[arXiv:hep-ph/0411236](#)] [SPIRES entry](#)
Contributed to the Proceedings of American Physical Society’s 2004 Meeting of the Division of Particles and Fields (DPF2004), Riverside, CA, 26-31 August 2004
30. “**Exploring lattice methods for cold fermionic atoms**”
M. Wingate
Nucl. Phys. Proc. Suppl. **140**, 592 (2005) [[arXiv:hep-lat/0409060](#)] [SPIRES entry](#)
Contributed to the 22nd International Symposium on Lattice Field Theory (Lattice 2004), Batavia, Illinois, 21-26 Jun 2004
31. “***B* leptonic Decays and $B^0 - \overline{B}^0$ mixing with 2+1 flavors of dynamical quarks**”
A. Gray, C. Davies, E. Gulez, G. P. Lepage, J. Shigemitsu and M. Wingate
Nucl. Phys. Proc. Suppl. **140**, 446 (2005) [[arXiv:hep-lat/0409040](#)] [SPIRES entry](#)
Contributed to the 22nd International Symposium on Lattice Field Theory (Lattice 2004), Batavia, Illinois, 21-26 Jun 2004

32. **“Semileptonic B decays with $N_f = 2+1$ dynamical quarks”**
 J. Shigemitsu *et al.*
 Nucl. Phys. Proc. Suppl. **140**, 464 (2005) [arXiv:hep-lat/0408019] [SPIRES entry](#)
*Contributed to the 22nd International Symposium on Lattice Field Theory (Lattice 2004),
 Batavia, Illinois, 21-26 Jun 2004*
33. **“Heavy-light meson semileptonic decays with staggered light quarks”**
 J. Shigemitsu, C. T. H. Davies, A. Gray, E. Gulez, G. P. Lepage and M. Wingate
 Nucl. Phys. Proc. Suppl. **129**, 331 (2004) [arXiv:hep-lat/0309039] [SPIRES entry](#)
*Contributed to the 21st International Symposium on Lattice Field Theory (Lattice 2003),
 Tsukuba, Ibaraki, Japan, 15-19 Jul 2003*
34. **“Progress calculating decay constants with NRQCD and AsqTad actions”**
 M. Wingate, C. Davies, A. Gray, E. Gulez, G. P. Lepage and J. Shigemitsu
 Nucl. Phys. Proc. Suppl. **129**, 325 (2004) [arXiv:hep-lat/0309092] [SPIRES entry](#)
*Contributed to the 21st International Symposium on Lattice Field Theory (Lattice 2003),
 Tsukuba, Ibaraki, Japan, 15-19 Jul 2003*
35. **“The Υ spectrum from lattice QCD with 2+1 flavors of dynamical quarks”**
 A. Gray *et al.* [HPQCD collaboration]
 Nucl. Phys. Proc. Suppl. **119**, 592 (2003) [arXiv:hep-lat/0209022] [SPIRES entry](#)
*Contributed to the 20th International Symposium on Lattice Field Theory (Lattice 2002),
 Boston, Massachusetts, 24-29 Jun 2002*
36. **“ B_s mesons using staggered light quarks”**
 M. Wingate, J. Shigemitsu, G. P. Lepage, C. Davies and H. Trottier
 Nucl. Phys. Proc. Suppl. **119**, 604 (2003) [arXiv:hep-lat/0209096] [SPIRES entry](#)
*Contributed to the 20th International Symposium on Lattice Field Theory (Lattice 2002),
 Boston, Massachusetts, 24-29 Jun 2002*
37. **“The determination of α_s from lattice QCD with 2+1 flavors of dynamical quarks”**
 C. Davies *et al.*
 Nucl. Phys. Proc. Suppl. **119**, 595 (2003) [arXiv:hep-lat/0209122] [SPIRES entry](#)
*Contributed to the 20th International Symposium on Lattice Field Theory (Lattice 2002),
 Boston, Massachusetts, 24-29 Jun 2002*
38. **“Heavy-light physics using NRQCD-staggered actions”**
 M. Wingate, J. Shigemitsu and G. P. Lepage
 Nucl. Phys. Proc. Suppl. **106**, 379 (2002) [arXiv:hep-lat/0110161] [SPIRES entry](#)
*Contributed to the 19th International Symposium on Lattice Field Theory (Lattice 2001),
 Berlin, Germany, 19-24 Aug 2001*
39. **“Light quark masses from quenched lattice QCD simulations with domain wall quarks”**
 M. Wingate *et al.* [RIKEN-BNL-CU Collaboration]
 Int. J. Mod. Phys. A **16S1B**, 585 (2001) [arXiv:hep-lat/0009022] [SPIRES entry](#)
*Contributed to The Meeting of the Division of Particles and Fields of the American Physical
 Society (DPF 2000), Columbus, Ohio, 9-12 Aug 2000*

40. **“Light hadronic physics using domain wall fermions in quenched lattice QCD”**
M. Wingate [RIKEN-BNL-CU Collaboration]
Nucl. Phys. Proc. Suppl. **94**, 277 (2001) [arXiv:hep-lat/0009023] [SPIRES entry](#)
Contributed to the 18th International Symposium on Lattice Field Theory (Lattice 2000), Bangalore, India, 17-22 Aug 2000
41. **“Domain wall fermions and the strange quark mass”**
M. Wingate
Nucl. Phys. Proc. Suppl. **86**, 224 (2000) [arXiv:hep-ph/9909382] [SPIRES entry](#)
Contributed to High Energy Physics International Euroconference on Quantum Chromo Dynamics (QCD 99), Montpellier, France, 7-13 Jul 1999
42. **“Quark masses using domain wall fermions”**
M. Wingate
Nucl. Phys. Proc. Suppl. **83**, 221 (2000) [arXiv:hep-lat/9909101] [SPIRES entry](#)
Contributed to the 17th International Symposium on Lattice Field Theory (Lattice 99), Pisa, Italy, 29 Jun - 3 Jul 1999
43. **“SU(4) pure-gauge phase structure and string tensions”**
S. Ohta and M. Wingate
Nucl. Phys. Proc. Suppl. **83**, 381 (2000) [arXiv:hep-lat/9909125] [SPIRES entry](#)
Contributed to the 17th International Symposium on Lattice Field Theory (Lattice 99), Pisa, Italy, 29 Jun - 3 Jul 1999
44. **“SU(4) pure-gauge string tensions”**
S. Ohta and M. Wingate
Nucl. Phys. Proc. Suppl. **73**, 435 (1999) [arXiv:hep-lat/9808022] [SPIRES entry](#)
Contributed to the 16th International Symposium on Lattice Field Theory (Lattice 98), Boulder, CO, 13-18 Jul 1998
45. **“Light quark masses using domain wall fermions”**
M. Wingate, T. Blum and A. Soni
Nucl. Phys. Proc. Suppl. **73**, 201 (1999) [arXiv:hep-lat/9809065] [SPIRES entry](#)
Contributed to the 16th International Symposium on Lattice Field Theory (Lattice 98), Boulder, CO, 13-18 Jul 1998
46. **“Heavy-light decay constants: Conclusions from the Wilson action”**
C. W. Bernard *et al.*
Nucl. Phys. Proc. Suppl. **73**, 372 (1999) [arXiv:hep-lat/9809109] [SPIRES entry](#)
Contributed to the 16th International Symposium on Lattice Field Theory (Lattice 98), Boulder, CO, 13-18 Jul 1998
47. **“MILC studies of high temperature QCD: A progress report”**
C. W. Bernard *et al.*
Nucl. Phys. Proc. Suppl. **60A**, 195 (1998) [SPIRES entry](#)
Prepared for International Workshop on Lattice QCD on Parallel Computers, Tsukuba, Japan, 10-15 Mar 1997
48. **“Towards the QCD spectrum with dynamical quarks”**
C. W. Bernard *et al.*

- Nucl. Phys. Proc. Suppl. **60A**, 297 (1998) [SPIRES entry](#)
Prepared for International Workshop on Lattice QCD on Parallel Computers, Tsukuba, Japan, 10-15 Mar 1997
49. **“Heavy-light decay constants from Wilson and static quarks”**
 C. W. Bernard *et al.*
 Nucl. Phys. Proc. Suppl. **63**, 362 (1998) [arXiv:hep-lat/9709142] [SPIRES entry](#)
Contributed to the 15th International Symposium on Lattice Field Theory (Lattice 97), Edinburgh, Scotland, 22-26 Jul 1997
50. **“Light quark spectrum with improved gauge and fermion actions”**
 C. W. Bernard *et al.* [MILC Collaboration]
 Nucl. Phys. Proc. Suppl. **63**, 182 (1998) [arXiv:hep-lat/9711013] [SPIRES entry](#)
Contributed to the 15th International Symposium on Lattice Field Theory (Lattice 97), Edinburgh, Scotland, 22-26 Jul 1997
51. **“Heavy-light decay constants: MILC results with the Wilson action”**
 C. W. Bernard *et al.* [MILC Collaboration]
 Nucl. Phys. Proc. Suppl. **60A**, 106 (1998) [arXiv:hep-lat/9707013] [SPIRES entry](#)
Contributed to International Workshop on Lattice QCD on Parallel Computers, Tsukuba, Japan, 10-15 Mar 1997
52. **“Finite temperature lattice QCD with clover fermions”**
 C. W. Bernard *et al.*
 Nucl. Phys. Proc. Suppl. **53**, 446 (1997) [arXiv:hep-lat/9607085] [SPIRES entry](#)
Contributed to the 14th International Symposium on Lattice Field Theory (Lattice 96), St. Louis, MO, 4-8 Jun 1996
53. **“Thermodynamics for two flavor QCD”**
 C. W. Bernard *et al.*
 Nucl. Phys. Proc. Suppl. **53**, 442 (1997) [arXiv:hep-lat/9608026] [SPIRES entry](#)
Contributed to the 14th International Symposium on Lattice Field Theory (Lattice 96), St. Louis, MO, 4-8 Jun 1996
54. **“Assorted weak matrix elements involving the bottom quark”**
 C. W. Bernard *et al.*
 Nucl. Phys. Proc. Suppl. **53**, 374 (1997) [arXiv:hep-lat/9608088] [SPIRES entry](#)
Contributed to the 14th International Symposium on Lattice Field Theory (Lattice 96), St. Louis, MO, 4-8 Jun 1996
55. **“Update on f_B ”**
 C. W. Bernard *et al.* [MILC Collaboration]
 Nucl. Phys. Proc. Suppl. **53**, 358 (1997) [arXiv:hep-lat/9608092] [SPIRES entry](#)
Contributed to the 14th International Symposium on Lattice Field Theory (Lattice 96), St. Louis, MO, 4-8 Jun 1996
56. **“ f_B quenched and unquenched”**
 C. W. Bernard *et al.*
 Nucl. Phys. Proc. Suppl. **47**, 459 (1996) [arXiv:hep-lat/9509045] [SPIRES entry](#)

Contributed to the 13th International Symposium on Lattice Field Theory (Lattice 95), Melbourne, Australia, 11-15 Jul 1995

57. **“P wave meson properties with Wilson quarks”**

M. Wingate, T. DeGrand, S. Collins and U. M. Heller

Nucl. Phys. Proc. Suppl. **42**, 373 (1995) [arXiv:hep-lat/9411041] [SPIRES entry](#)

Contributed to the 12th International Symposium on Lattice Field Theory (Lattice 94), Bielefeld, Germany, 27 Sep - 1 Oct 1994