

# USQCD Publications

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## Publications in or Submitted to Refereed Journals

- [1] W. Detmold and S. Meinel, “ $\Lambda_b \rightarrow \Lambda \ell^+ \ell^-$  form factors, differential branching fraction, and angular observables from lattice QCD with relativistic  $b$  quarks,” Phys. Rev. D **93**, no. 7, 074501 (2016) doi:10.1103/PhysRevD.93.074501 [arXiv:1602.01399 [hep-lat]].
- [2] E. Chang *et al.* [NPLQCD Collaboration], “Magnetic structure of light nuclei from lattice QCD,” Phys. Rev. D **92**, no. 11, 114502 (2015) doi:10.1103/PhysRevD.92.114502 [arXiv:1506.05518 [hep-lat]].
- [3] W. Detmold, K. Orginos, A. Parreno, M. J. Savage, B. C. Tiburzi, S. R. Beane and E. Chang, “Unitary Limit of Two-Nucleon Interactions in Strong Magnetic Fields,” Phys. Rev. Lett. **116**, no. 11, 112301 (2016) doi:10.1103/PhysRevLett.116.112301 [arXiv:1508.05884 [hep-lat]].
- [4] K. Orginos, A. Parreno, M. J. Savage, S. R. Beane, E. Chang and W. Detmold, “Two nucleon systems at  $m_\pi \sim 450$  MeV from lattice QCD,” Phys. Rev. D **92**, no. 11, 114512 (2015) doi:10.1103/PhysRevD.92.114512 [arXiv:1508.07583 [hep-lat]].
- [5] J. Green *et al.*, “High-precision calculation of the strange nucleon electromagnetic form factors,” Phys. Rev. D **92**, no. 3, 031501 (2015) doi:10.1103/PhysRevD.92.031501 [arXiv:1505.01803 [hep-lat]].
- [6] B. Yoon *et al.*, “Controlling Excited-State Contamination in Nucleon Matrix Elements,” Phys. Rev. D **93** (2016) no.11, 114506 doi:10.1103/PhysRevD.93.114506 [arXiv:1602.07737 [hep-lat]].
- [7] D. J. Wilson, R. A. Briceno, J. J. Dudek, R. G. Edwards and C. E. Thomas, “Coupled  $\pi\pi, K\bar{K}$  scattering in  $P$ -wave and the  $\rho$  resonance from lattice QCD,” Phys. Rev. D **92**, no. 9, 094502 (2015) doi:10.1103/PhysRevD.92.094502 [arXiv:1507.02599 [hep-ph]].
- [8] R. A. Briceno, J. J. Dudek, R. G. Edwards, C. J. Shultz, C. E. Thomas and D. J. Wilson, “The resonant  $\pi^+\gamma \rightarrow \pi^+\pi^0$  amplitude from Quantum Chromodynamics,” Phys. Rev. Lett. **115**, 242001 (2015) doi:10.1103/PhysRevLett.115.242001 [arXiv:1507.06622 [hep-ph]].
- [9] J. J. Dudek *et al.* [Hadron Spectrum Collaboration], “An  $a_0$  resonance in strongly coupled  $\pi\eta, K\bar{K}$  scattering from lattice QCD,” Phys. Rev. D **93**, no. 9, 094506 (2016) doi:10.1103/PhysRevD.93.094506 [arXiv:1602.05122 [hep-ph]].
- [10] R. A. Briceo, J. J. Dudek, R. G. Edwards, C. J. Shultz, C. E. Thomas and D. J. Wilson, “The  $\pi\pi \rightarrow \pi\gamma^*$  amplitude and the resonant  $\rho \rightarrow \pi\gamma^*$  transition from lattice QCD,” Phys. Rev. D **93**, no. 11, 114508 (2016) doi:10.1103/PhysRevD.93.114508 [arXiv:1604.03530 [hep-ph]].
- [11] H. T. Ding, F. Karsch and S. Mukherjee, “Thermodynamics of Strong-Interaction Matter from Lattice QCD,”

- [12] Z. Fodor, K. Holland, J. Kuti, S. Mondal, D. Nogradi and C. H. Wong, “The running coupling of the minimal sextet composite Higgs model,” JHEP **1509**, 039 (2015) doi:10.1007/JHEP09(2015)039 [arXiv:1506.06599 [hep-lat]].
- [13] T. DeGrand and Y. Liu, “Lattice study of large  $N_c$  QCD,” arXiv:1606.01277 [hep-lat].
- [14] D. Schaich and S. Catterall, “Maximally supersymmetric Yang-Mills on the lattice,” arXiv:1508.00884 [hep-th].
- [15] T. Appelquist *et al.*, “Strongly interacting dynamics and the search for new physics at the LHC,” Phys. Rev. D **93**, no. 11, 114514 (2016) doi:10.1103/PhysRevD.93.114514 [arXiv:1601.04027 [hep-lat]].
- [16] R. C. Brower, A. Hasenfratz, C. Rebbi, E. Weinberg and O. Witzel, “Composite Higgs model at a conformal fixed point,” Phys. Rev. D **93**, no. 7, 075028 (2016) doi:10.1103/PhysRevD.93.075028 [arXiv:1512.02576 [hep-ph]].
- [17] A. Hasenfratz, Y. Liu and C. Y. H. Huang, “The renormalization group step scaling function of the 2-flavor SU(3) sextet model,” arXiv:1507.08260 [hep-lat].
- [18] Z. Fodor, K. Holland, J. Kuti, S. Mondal, D. Nogradi and C. H. Wong, “Electroweak interactions and dark baryons in the sextet BSM model with a composite Higgs particle,” arXiv:1601.03302 [hep-lat].
- [19] E. Shintani, T. Blum, T. Izubuchi and A. Soni, “Neutron and proton electric dipole moments from  $N_f = 2 + 1$  domain-wall fermion lattice QCD,” Phys. Rev. D **93**, no. 9, 094503 (2016) doi:10.1103/PhysRevD.93.094503 [arXiv:1512.00566 [hep-lat]].
- [20] T. Blum *et al.*, “Calculation of the hadronic vacuum polarization disconnected contribution to the muon anomalous magnetic moment,” Phys. Rev. Lett. **116**, no. 23, 232002 (2016) doi:10.1103/PhysRevLett.116.232002 [arXiv:1512.09054 [hep-lat]].
- [21] T. Blum *et al.* [RBC/UKQCD Collaboration], “Lattice calculation of the leading strange quark-connected contribution to the muon  $g - 2$ ,” JHEP **1604**, 063 (2016) doi:10.1007/JHEP04(2016)063 [arXiv:1602.01767 [hep-lat]].
- [22] Z. Bai *et al.* [RBC and UKQCD Collaborations], “Standard Model Prediction for Direct CP Violation in  $K \rightarrow \pi\pi$  Decay,” Phys. Rev. Lett. **115**, no. 21, 212001 (2015) doi:10.1103/PhysRevLett.115.212001 [arXiv:1505.07863 [hep-lat]].
- [23] L. Jin, T. Blum, N. Christ, M. Hayakawa, T. Izubuchi and C. Lehner, “Lattice Calculation of the Connected Hadronic Light-by-Light Contribution to the Muon Anomalous Magnetic Moment,” arXiv:1509.08372 [hep-lat].
- [24] T. Blum, N. Christ, M. Hayakawa, T. Izubuchi, L. Jin and C. Lehner, “Lattice Calculation of Hadronic Light-by-Light Contribution to the Muon Anomalous Magnetic Moment,” Phys. Rev. D **93**, no. 1, 014503 (2016) doi:10.1103/PhysRevD.93.014503 [arXiv:1510.07100 [hep-lat]].
- [25] P. A. Boyle *et al.*, “Low energy constants of SU(2) partially quenched chiral perturbation theory from  $N_f=2+1$  domain wall QCD,” Phys. Rev. D **93**, no. 5, 054502 (2016) doi:10.1103/PhysRevD.93.054502 [arXiv:1511.01950 [hep-lat]].
- [26] C. Aubin, T. Blum, P. Chau, M. Golterman, S. Peris and C. Tu, “Finite-volume effects in the muon anomalous magnetic moment on the lattice,” Phys. Rev. D **93**, no. 5, 054508 (2016) doi:10.1103/PhysRevD.93.054508 [arXiv:1512.07555 [hep-lat]].

- [27] C. Aubin, T. Blum, M. Golterman and S. Peris, “Hadronic vacuum polarization with twisted boundary conditions,” *Phys. Rev. D* **88**, no. 7, 074505 (2013) doi:10.1103/PhysRevD.88.074505 [arXiv:1307.4701 [hep-lat]].
- [28] B. Colquhoun, R. J. Dowdall, J. Koponen, C. T. H. Davies and G. P. Lepage, “ $B \rightarrow \pi \ell \nu$  at zero recoil from lattice QCD with physical u/d quarks,” *Phys. Rev. D* **93**, no. 3, 034502 (2016) doi:10.1103/PhysRevD.93.034502 [arXiv:1510.07446 [hep-lat]].
- [29] J. Koponen, F. Bursa, C. T. H. Davies, R. J. Dowdall and G. P. Lepage, “Size of the pion from full lattice QCD with physical u, d, s and c quarks,” *Phys. Rev. D* **93**, no. 5, 054503 (2016) doi:10.1103/PhysRevD.93.054503 [arXiv:1511.07382 [hep-lat]].
- [30] B. Chakraborty, C. T. H. Davies, J. Koponen, G. P. Lepage, M. J. Peardon and S. M. Ryan, “Estimate of the hadronic vacuum polarization disconnected contribution to the anomalous magnetic moment of the muon from lattice QCD,” *Phys. Rev. D* **93**, no. 7, 074509 (2016) doi:10.1103/PhysRevD.93.074509 [arXiv:1512.03270 [hep-lat]].
- [31] B. Chakraborty, C. T. H. Davies, P. G. de Oliveira, J. Koponen and G. P. Lepage, “The hadronic vacuum polarization contribution to  $a_\mu$  from full lattice QCD,” arXiv:1601.03071 [hep-lat].
- [32] J. A. Bailey *et al.* [Fermilab Lattice and MILC Collaborations], “ $|V_{ub}|$  from  $B \rightarrow \pi \ell \nu$  decays and (2+1)-flavor lattice QCD,” *Phys. Rev. D* **92**, no. 1, 014024 (2015) doi:10.1103/PhysRevD.92.014024 [arXiv:1503.07839 [hep-lat]].
- [33] J. A. Bailey *et al.* [Fermilab Lattice and MILC Collaborations], “ $B \rightarrow \pi \ell \ell$  form factors for new-physics searches from lattice QCD,” *Phys. Rev. Lett.* **115**, no. 15, 152002 (2015) doi:10.1103/PhysRevLett.115.152002 [arXiv:1507.01618 [hep-ph]].
- [34] J. A. Bailey *et al.*, “ $B \rightarrow Kl^+l^-$  decay form factors from three-flavor lattice QCD,” *Phys. Rev. D* **93**, no. 2, 025026 (2016) doi:10.1103/PhysRevD.93.025026 [arXiv:1509.06235 [hep-lat]].
- [35] A. Bazavov *et al.* [Fermilab Lattice and MILC Collaborations], “ $B_{(s)}^0$ -mixing matrix elements from lattice QCD for the Standard Model and beyond,” arXiv:1602.03560 [hep-lat].
- [36] W. Detmold, M. McCullough and A. Pochinsky, “Dark nuclei. II. Nuclear spectroscopy in two-color QCD,” *Phys. Rev. D* **90**, no. 11, 114506 (2014) [arXiv:1406.4116 [hep-lat]].
- [37] W. Detmold, M. McCullough and A. Pochinsky, “Dark Nuclei I: Cosmology and Indirect Detection,” *Phys. Rev. D* **90**, no. 11, 115013 (2014) [arXiv:1406.2276 [hep-ph]].
- [38] Z. S. Brown, W. Detmold, S. Meinel and K. Orginos, “Charmed bottom baryon spectroscopy from lattice QCD,” *Phys. Rev. D* **90**, no. 9, 094507 (2014) [arXiv:1409.0497 [hep-lat]].
- [39] W. Detmold, C. Lehner and S. Meinel, “ $\Lambda_b \rightarrow p \ell^- \bar{\nu}_\ell$  and  $\Lambda_b \rightarrow \Lambda_c \ell^- \bar{\nu}_\ell$  form factors from lattice QCD with relativistic heavy quarks,” arXiv:1503.01421 [hep-lat].
- [40] R. A. Briceno, Z. Davoudi, T. C. Luu and M. J. Savage, “Two-Baryon Systems with Twisted Boundary Conditions,” *Phys. Rev. D* **89**, no. 7, 074509 (2014) [arXiv:1311.7686 [hep-lat]].
- [41] Z. Davoudi and M. J. Savage, “Finite-Volume Electromagnetic Corrections to the Masses of Mesons, Baryons and Nuclei,” *Phys. Rev. D* **90**, no. 5, 054503 (2014) [arXiv:1402.6741 [hep-lat]].

- [42] S. R. Beane and M. J. Savage, “Two-Particle Elastic Scattering in a Finite Volume Including QED,” *Phys. Rev. D* **90**, no. 7, 074511 (2014) [arXiv:1407.4846 [hep-lat]].
- [43] S. R. Beane, E. Chang, S. Cohen, W. Detmold, H. W. Lin, K. Orginos, A. Parreno and M. J. Savage *et al.*, “Magnetic moments of light nuclei from lattice quantum chromodynamics,” *Phys. Rev. Lett.* **113**, no. 25, 252001 (2014) [arXiv:1409.3556 [hep-lat]].
- [44] S. R. Beane, E. Chang, S. D. Cohen, W. Detmold, H.-W. Lin, K. Orginos, A. Parreno and M. J. Savage, “Quarkonium-Nucleus Bound States from Lattice QCD,” arXiv:1410.7069 [hep-lat].
- [45] S. R. Beane, E. Chang, W. Detmold, K. Orginos, A. Parreno, M. J. Savage and B. C. Tiburzi, “Ab initio calculation of the  $np \rightarrow d\gamma$  radiative capture process,” arXiv:1505.02422 [hep-lat].
- [46] E. V. Mastropas *et al.* [Hadron Spectrum Collaboration], “Decay constants of the pion and its excitations on the lattice,” *Phys. Rev. D* **90**, no. 1, 014511 (2014) [arXiv:1403.5575 [hep-lat]].
- [47] J. J. Dudek *et al.* [Hadron Spectrum Collaboration], “Resonances in coupled  $\pi K - \eta K$  scattering from quantum chromodynamics,” *Phys. Rev. Lett.* **113**, no. 18, 182001 (2014) [arXiv:1406.4158 [hep-ph]].
- [48] M. Padmanath, R. G. Edwards, N. Mathur and M. Peardon, “Spectroscopy of charmed baryons from lattice QCD,” arXiv:1410.8791 [hep-lat].
- [49] D. J. Wilson, J. J. Dudek, R. G. Edwards and C. E. Thomas, “Resonances in coupled  $\pi K, \eta K$  scattering from lattice QCD,” *Phys. Rev. D* **91**, no. 5, 054008 (2015) [arXiv:1411.2004 [hep-ph]].
- [50] C. J. Shultz, J. J. Dudek and R. G. Edwards, “Excited meson radiative transitions from lattice QCD using variationally optimized operators,” arXiv:1501.07457 [hep-lat].
- [51] M. Padmanath, R. G. Edwards, N. Mathur and M. Peardon, “Spectroscopy of doubly-charmed baryons from lattice QCD,” *Phys. Rev. D* **91**, no. 9, 094502 (2015) [arXiv:1502.01845 [hep-lat]].
- [52] T. Bhattacharya, V. Cirigliano, S. Cohen, R. Gupta, H. W. Lin and B. Yoon, “Axial, Scalar and Tensor Charges of the Nucleon from 2+1+1-flavor Lattice QCD,” arXiv:1606.07049 [hep-lat].
- [53] T. Bhattacharya, V. Cirigliano, R. Gupta, H. W. Lin and B. Yoon, “Neutron Electric Dipole Moment and Tensor Charges from Lattice QCD,” *Phys. Rev. Lett.* **115**, no. 21, 212002 (2015) doi:10.1103/PhysRevLett.115.212002 [arXiv:1506.04196 [hep-lat]].
- [54] R. S. Sufian, Y. B. Yang, A. Alexandru, T. Draper, K. F. Liu and J. Liang, “Strange Quark Magnetic Moment of the Nucleon at Physical Point,” arXiv:1606.07075 [hep-ph].
- [55] Y. B. Yang, A. Alexandru, T. Draper, J. Liang and K. F. Liu, arXiv:1511.09089 [hep-lat].
- [56] Y. Chen, A. Alexandru, T. Draper, K. F. Liu, Z. Liu and Y. B. Yang, “Leptonic Decay Constant of  $\rho$  at Physical Point,” arXiv:1507.02541 [hep-ph].
- [57] J. W. Chen, S. D. Cohen, X. Ji, H. W. Lin and J. H. Zhang, “Nucleon Helicity and Transversity Parton Distributions from Lattice QCD,” arXiv:1603.06664 [hep-ph].

- [58] A. Bazavov, F. Karsch, Y. Maezawa, S. Mukherjee and P. Petreczky, ‘In-medium modifications of open and hidden strange-charm mesons from spatial correlation functions,’ Phys. Rev. D **91**, no. 5, 054503 (2015) [arXiv:1411.3018 [hep-lat]].
- [59] R. A. Soltz, C. DeTar, F. Karsch, S. Mukherjee and P. Vranas, ‘Lattice QCD Thermodynamics with Physical Quark Masses,’ arXiv:1502.02296 [hep-lat].
- [60] V. Dick, F. Karsch, E. Laermann, S. Mukherjee and S. Sharma, ‘Microscopic Origin of  $U_A(1)$  Symmetry Violation in the High Temperature Phase of QCD,’ Phys. Rev. D **91**, 094504 (2015) [arXiv:1502.06190 [hep-lat]].
- [61] M. I. Buchoff, M. Cheng, N. H. Christ, H.-T. Ding, C. Jung, F. Karsch, Z. Lin and R. D. Mawhinney *et al.*, ‘QCD chiral transition,  $U(1)_A$  symmetry and the dirac spectrum using domain wall fermions,’ Phys. Rev. D **89**, no. 5, 054514 (2014) [arXiv:1309.4149 [hep-lat]].
- [62] T. Bhattacharya, M. I. Buchoff, N. H. Christ, H.-T. Ding, R. Gupta, C. Jung, F. Karsch and Z. Lin *et al.*, ‘QCD Phase Transition with Chiral Quarks and Physical Quark Masses,’ Phys. Rev. Lett. **113**, no. 8, 082001 (2014) [arXiv:1402.5175 [hep-lat]].
- [63] P. Petreczky, H. P. Schadler and S. Sharma, ‘The topological susceptibility in finite temperature QCD and axion cosmology,’ arXiv:1606.03145 [hep-lat].
- [64] S. Mukherjee, P. Petreczky and S. Sharma, ‘Charm degrees of freedom in the quark gluon plasma,’ Phys. Rev. D **93**, no. 1, 014502 (2016) doi:10.1103/PhysRevD.93.014502 [arXiv:1509.08887 [hep-lat]].
- [65] N. H. Christ, J. M. Flynn, T. Izubuchi, T. Kawanai, C. Lehner, A. Soni, R. S. Van de Water and O. Witzel, ‘B-meson decay constants from 2+1-flavor lattice QCD with domain-wall light quarks and relativistic heavy quarks,’ Phys. Rev. D **91**, no. 5, 054502 (2015) [arXiv:1404.4670 [hep-lat]].
- [66] Z. Bai, N. H. Christ, T. Izubuchi, C. T. Sachrajda, A. Soni and J. Yu, ‘ $K_L - K_S$  Mass Difference from Lattice QCD,’ Phys. Rev. Lett. **113**, 112003 (2014) [arXiv:1406.0916 [hep-lat]].
- [67] T. Blum *et al.* [RBC and UKQCD Collaborations], ‘Domain wall QCD with physical quark masses,’ arXiv:1411.7017 [hep-lat].
- [68] T. Blum, P. A. Boyle, N. H. Christ, J. Frison, N. Garron, T. Janowski, C. Jung and C. Kelly *et al.*, ‘ $K \rightarrow \pi\pi$   $\Delta I = 3/2$  decay amplitude in the continuum limit,’ Phys. Rev. D **91**, no. 7, 074502 (2015) [arXiv:1502.00263 [hep-lat]].
- [69] P. A. Boyle, N. H. Christ, J. M. Flynn, N. Garron, C. Jung, A. Juttner, R. D. Mawhinney and D. Murphy *et al.*, ‘The kaon semileptonic form factor in  $N_f=2+1$  domain wall lattice QCD with physical light quark masses,’ arXiv:1504.01692 [hep-lat].
- [70] J. A. Bailey *et al.* [Fermilab Lattice and MILC Collaborations], ‘ $|V_{ub}|$  from  $B \rightarrow \pi\ell\nu$  decays and (2+1)-flavor lattice QCD,’ arXiv:1503.07839 [hep-lat].
- [71] F. Lattice *et al.* [MILC s Collaboration], ‘The  $B \rightarrow D\ell\nu$  form factors at nonzero recoil and  $|V_{cb}|$  from 2 + 1-flavor lattice QCD,’ arXiv:1503.07237 [hep-lat].
- [72] A. Bazavov *et al.* [MILC Collaboration], ‘Gradient flow and scale setting on MILC HISQ ensembles,’ arXiv:1503.02769 [hep-lat].
- [73] J. M. Flynn, T. Izubuchi, T. Kawanai, C. Lehner, A. Soni, R. S. Van de Water and O. Witzel, Phys. Rev. D **91**, no. 7, 074510 (2015) [arXiv:1501.05373 [hep-lat]].

- [74] Z. Fodor, K. Holland, J. Kuti, S. Mondal, D. Negradi and C. H. Wong, “The running coupling of 8 flavors and 3 colors,” arXiv:1503.01132 [hep-lat].
- [75] J. Laiho, S. Bassler, D. Coumbe, D. Du and J. T. Neelakanta, arXiv:1604.02745 [hep-th].
- [76] A. Hasenfratz, D. Schaich and A. Veernala, “Nonperturbative beta function of eight-flavor SU(3) gauge theory,” arXiv:1410.5886 [hep-lat].
- [77] T. Appelquist *et al.* [LSD Collaboration], “Lattice simulations with eight flavors of domain wall fermions in SU(3) gauge theory,” Phys. Rev. D **90**, no. 11, 114502 (2014) [arXiv:1405.4752 [hep-lat]].
- [78] T. Appelquist *et al.* [Lattice Strong Dynamics (LSD) Collaboration], “Composite bosonic baryon dark matter on the lattice: SU(4) baryon spectrum and the effective Higgs interaction,” Phys. Rev. D **89**, no. 9, 094508 (2014) [arXiv:1402.6656 [hep-lat]].
- [79] T. Appelquist, R. C. Brower, M. I. Buchoff, M. Cheng, G. T. Fleming, J. Kiskis, M. F. Lin and E. T. Neil *et al.*, “Two-Color Gauge Theory with Novel Infrared Behavior,” Phys. Rev. Lett. **112**, no. 11, 111601 (2014) [arXiv:1311.4889 [hep-ph]].
- [80] T. Appelquist *et al.* [Lattice Strong Dynamics (LSD) Collaboration], “Lattice calculation of composite dark matter form factors,” Phys. Rev. D **88**, no. 1, 014502 (2013) [arXiv:1301.1693 [hep-ph]].
- [81] The Fermilab Lattice and MILC Collaborations: A. Bazavov, C. Bernard, C. Bouchard, C. DeTar, D. Du, A.X. El-Khadra, J. Foley, E.D. Freeland, E. Gmiz, Steven Gottlieb, U.M. Heller, J. Kim, A.S. Kronfeld, J. Laiho, L. Levkova, P.B. Mackenzie, E.T. Neil, M.B. Oktay, Si-Wei Qiu, J.N. Simone, R. Sugar, D. Toussaint, R.S. Van de Water, and Ran Zhou, *Determination of  $|V_{us}|$  from a lattice-QCD calculation of the  $K \rightarrow \pi \ell \nu$  semileptonic form factor with physical quark masses*, Phys. Rev. Lett. **112**, 112001 (2014) [arXiv:1312.1228].
- [82] The Fermilab Lattice and MILC Collaborations: J. Bailey, A. Bazavov, C. Bernard, C. Bouchard, C. DeTar, D. Du, A.X. El-Khadra, J. Foley, E.D. Freeland, E. Gmiz, Steven Gottlieb, U.M. Heller, A.S. Kronfeld, J. Laiho, L. Levkova, P.B. Mackenzie, E.T. Neil, Si-Wei Qiu, J.N. Simone, R. Sugar, D. Toussaint, R.S. Van de Water, and Ran Zhou, *Update of  $|V_{cb}|$  from the  $\bar{B} \rightarrow D^* \ell \bar{\nu}$  form factor at zero recoil with three-flavor lattice QCD*, Phys. Rev. D **89**, 114504 (2014) [arXiv:1403.0635].
- [83] A. Bazavov *et al.* [Fermilab Lattice and MILC Collaborations], “Charmed and light pseudoscalar meson decay constants from four-flavor lattice QCD with physical light quarks,” Phys. Rev. D **90**, no. 7, 074509 (2014) [arXiv:1407.3772 [hep-lat]].
- [84] The Fermilab Lattice and MILC Collaborations: A. Bazavov, *et al.*, *Determination of  $|V_{us}|$  from a lattice-QCD calculation of the  $K \rightarrow \pi \ell \nu$  semileptonic form factor with physical quark masses*, Phys. Rev. Lett. **112**, 112001 (2014).
- [85] Z. Liu *et al.* [chiQCD Collaboration], Phys. Rev. D **90**, no. 3, 034505 (2014) [arXiv:1312.7628 [hep-lat]].
- [86] M. Gong *et al.* [ $\chi$  QCD Collaboration], *Strangeness and charmness content of the nucleon from overlap fermions on 2+1-flavor domain-wall fermion configurations*, Phys. Rev. D **88**, no. 1, 014503 (2013) [arXiv:1304.1194 [hep-ph]].
- [87] A. Bazavov, H. -T. Ding, P. Hegde, O. Kaczmarek, F. Karsch, E. Laermann, Y. Maezawa and S. Mukherjee *et al.*, *Strangeness at high temperatures: from hadrons to quarks*, Phys. Rev. Lett. **111**, 082301 (2013) [arXiv:1304.7220 [hep-lat]].

- [88] A. Bazavov, H.-T. Ding, P. Hegde, O. Kaczmarek, F. Karsch, E. Laermann, Y. Maezawa and S. Mukherjee *et al.*, “Additional Strange Hadrons from QCD Thermodynamics and Strangeness Freezeout in Heavy Ion Collisions,” *Phys. Rev. Lett.* **113**, no. 7, 072001 (2014) [arXiv:1404.6511 [hep-lat]].
- [89] A. Bazavov, H.-T. Ding, P. Hegde, O. Kaczmarek, F. Karsch, E. Laermann, Y. Maezawa and S. Mukherjee *et al.*, “The melting and abundance of open charm hadrons,” *Phys. Lett. B* **737**, 210 (2014) [arXiv:1404.4043 [hep-lat]].
- [90] Y. Aoki, E. Shintani and A. Soni, *Proton decay matrix elements on the lattice*, *Phys. Rev. D* **89**, 014505 (2014) [arXiv:1304.7424 [hep-lat]].
- [91] R. J. Dowdall, C. T. H. Davies, G. P. Lepage and C. McNeile,  *$V_{us}$  from  $\pi$  and  $K$  decay constants in full lattice QCD with physical  $u$ ,  $d$ ,  $s$  and  $c$  quarks*, *Phys. Rev. D* **88**, 074504 (2013) [arXiv:1303.1670 [hep-lat]].
- [92] R. J. Dowdall *et al.* [HPQCD Collaboration],  *$B$ -Meson Decay Constants from Improved Lattice Nonrelativistic QCD with Physical  $u$ ,  $d$ ,  $s$ , and  $c$  Quarks*, *Phys. Rev. Lett.* **110**, no. 22, 222003 (2013) [arXiv:1302.2644 [hep-lat]].
- [93] S. R. Beane *et al.* [NPLQCD Collaboration], *Nucleon-Nucleon Scattering Parameters in the Limit of  $SU(3)$  Flavor Symmetry*, *Phys. Rev. C* **88**, no. 2, 024003 (2013) [arXiv:1301.5790 [hep-lat]].
- [94] A. Bazavov *et al.* [MILC Collaboration], *Leptonic decay-constant ratio  $f_{K^+}/f_{\pi^+}$  from lattice QCD with physical light quarks*, *Phys. Rev. Lett.* **110**, 172003 (2013) [arXiv:1301.5855 [hep-ph]].
- [95] A. Bazavov *et al.* [MILC Collaboration], *Lattice QCD ensembles with four flavors of highly improved staggered quarks*, *Phys. Rev. D* **87**, no. 5, 054505 (2013) [arXiv:1212.4768 [hep-lat]].
- [96] A. Bazavov, C. Bernard, C. M. Bouchard, C. DeTar, D. Du, A. X. El-Khadra, J. Foley and E. D. Freeland *et al.*, *Kaon semileptonic vector form factor and determination of  $|V_{us}|$  using staggered fermions*, *Phys. Rev. D* **87**, 073012 (2013) [arXiv:1212.4993 [hep-lat]].
- [97] P. A. Boyle *et al.* [RBC and UKQCD Collaborations], *Emerging understanding of the  $\Delta I = 1/2$  Rule from Lattice QCD*, *Phys. Rev. Lett.* **110**, no. 15, 152001 (2013) [arXiv:1212.1474 [hep-lat]].
- [98] W. Detmold, C. -J. D. Lin, S. Meinel and M. Wingate,  *$\Lambda_b \rightarrow \Lambda l^+ l^-$  form factors and differential branching fraction from lattice QCD*, *Phys. Rev. D* **87**, 074502 (2013) [arXiv:1212.4827 [hep-lat]].
- [99] R. G. Edwards, N. Mathur, D. G. Richards and S. J. Wallace, [Hadron Spectrum Collaboration], *The Flavor Structure of the Excited Baryon Spectra from Lattice QCD*, *Phys. Rev. D* **87**, 054506 (2013) [arXiv:1212.5236 [hep-ph]].
- [100] J. J. Dudek, R. G. Edwards and C. E. Thomas, [Hadron Spectrum Collaboration], *Energy dependence of the  $\rho$  resonance in  $\pi\pi$  elastic scattering from lattice QCD*, *Phys. Rev. D* **87**, 034505 (2013) [arXiv:1212.0830 [hep-ph]].
- [101] C. McNeile, A. Bazavov, C. T. H. Davies, R. J. Dowdall, K. Hornbostel, G. P. Lepage and H. D. Trottier, [HPQCD Collaboration], *Direct determination of the strange and light quark condensates from full lattice QCD*, *Phys. Rev. D* **87**, 034503 (2013) [arXiv:1211.6577 [hep-lat]].

- [102] G. C. Donald, C. T. H. Davies, R. J. Dowdall, E. Follana, K. Hornbostel, J. Koponen, G. P. Lepage and C. McNeile, [HPQCD Collaboration], *Precision tests of the  $J/\psi$  from full lattice QCD: mass, leptonic width and radiative decay rate to  $\eta_c$* , Phys. Rev. D **86**, 094501 (2012) [arXiv:1208.2855 [hep-lat]].
- [103] L. Liu, K. Orginos, F. -K. Guo, C. Hanhart and U. -G. Meissner, *Interactions of Charmed Mesons with Light Pseudoscalar Mesons from Lattice QCD and Implications on the Nature of the  $D_{s0}^*$ (2317)*, Phys. Rev. D **87**, 014508 (2013) [arXiv:1208.4535 [hep-lat]].
- [104] R. Arthur *et al.* [RBC and UKQCD Collaborations], *Domain Wall QCD with Near-Physical Pions*, Phys. Rev. D **87**, 094514 (2013) [arXiv:1208.4412 [hep-lat]].
- [105] C. McNeile, C. T. H. Davies, E. Follana, K. Hornbostel and G. P. Lepage, [HPQCD Collaboration], *Heavy meson masses and decay constants from relativistic heavy quarks in full lattice QCD*, Phys. Rev. D **86**, 074503 (2012) [arXiv:1207.0994 [hep-lat]].
- [106] R. A. Briceno, H. -W. Lin and D. R. Bolton, *Charmed-Baryon Spectroscopy from Lattice QCD with  $N_f = 2 + 1 + 1$  Flavors*, Phys. Rev. D **86**, 094504 (2012) [arXiv:1207.3536 [hep-lat]].
- [107] H. Na, C. T. H. Davies, E. Follana, G. P. Lepage and J. Shigemitsu,  $|V_{cd}|$  from  $D$  Meson Leptonic Decays, [HPQCD Collaboration], Phys. Rev. D **86**, 054510 (2012) [arXiv:1206.4936 [hep-lat]].
- [108] S. R. Beane, E. Chang, S. D. Cohen, W. Detmold, H. W. Lin, T. C. Luu, K. Orginos and A. Parreno *et al.*, [NPLQCD Collaboration], *Light Nuclei and Hypernuclei from Quantum Chromodynamics in the Limit of  $SU(3)$  Flavor Symmetry*, Phys. Rev. D **87**, 034506 (2013) [arXiv:1206.5219 [hep-lat]].
- [109] J. A. Bailey, A. Bazavov, C. Bernard, C. M. Bouchard, C. DeTar, D. Du, A. X. El-Khadra and J. Foley *et al.*, [Fermilab Lattice and MILC Collaborations], *Refining new-physics searches in  $B^- \rightarrow D\tau\nu$  decay with lattice QCD*, Phys. Rev. Lett. **109**, 071802 (2012) [arXiv:1206.4992 [hep-ph]].
- [110] A. Bazavov, C. Bernard, C. M. Bouchard, C. DeTar, M. Di Pierro, A. X. El-Khadra, R. T. Evans and E. D. Freeland *et al.*, [Fermilab Lattice and MILC Collaborations], *Neutral  $B$ -meson mixing from three-flavor lattice QCD: Determination of the  $SU(3)$ -breaking ratio  $\xi$* , Phys. Rev. D **86**, 034503 (2012) [arXiv:1205.7013 [hep-lat]].
- [111] L. Liu *et al.* [Hadron Spectrum Collaboration], *Excited and exotic charmonium spectroscopy from lattice QCD*, JHEP **1207**, 126 (2012) [arXiv:1204.5425 [hep-ph]].
- [112] M. Lujan, A. Alexandru, Y. Chen, T. Draper, W. Freeman, M. Gong, F. X. Lee and A. Li *et al.*, *The  $\Delta_{mix}$  parameter in the overlap on domain-wall mixed action*, Phys. Rev. D **86**, 014501 (2012) [arXiv:1204.6256 [hep-lat]].
- [113] A. Bazavov *et al.* [HotQCD Collaboration], *Fluctuations and Correlations of net baryon number, electric charge, and strangeness: A comparison of lattice QCD results with the hadron resonance gas model*, Phys. Rev. D **86**, 034509 (2012) [arXiv:1203.0784 [hep-lat]].
- [114] J. J. Dudek, R. G. Edwards and C. E. Thomas, [Hadron Spectrum Collaboration],  *$S$  and  $D$ -wave phase shifts in isospin-2  $\pi\pi$  scattering from lattice QCD*, Phys. Rev. D **86**, 034031 (2012) [arXiv:1203.6041 [hep-ph]].
- [115] T. Ishikawa, T. Blum, M. Hayakawa, T. Izubuchi, C. Jung and R. Zhou, [RBC Collaboration], *Full QED+QCD low-energy constants through reweighting*, Phys. Rev. Lett. **109**, 072002 (2012) [arXiv:1202.6018 [hep-lat]].



- [116] H. Na, C. J. Monahan, C. T. H. Davies, R. Horgan, G. P. Lepage and J. Shigemitsu, [HPQCD Collaboration], *The B and B<sub>s</sub> Meson Decay Constants from Lattice QCD*, Phys. Rev. D **86**, 034506 (2012) [arXiv:1202.4914 [hep-lat]].
- [117] J. A. Bailey, A. Bazavov, C. Bernard, C. M. Bouchard, C. DeTar, D. Du, A. X. El-Khadra and J. Foley *et al.*, [Fermilab Lattice and MILC Collaborations], *B<sub>s</sub> → D<sub>s</sub>/B → D Semileptonic Form-Factor Ratios and Their Application to BR(B<sub>s</sub><sup>0</sup> → μ<sup>+</sup>μ<sup>-</sup>)*, Phys. Rev. D **85**, 114502 (2012) [Erratum-ibid. D **86**, 039904 (2012)] [arXiv:1202.6346 [hep-lat]].
- [118] J. J. Dudek and R. G. Edwards, [Hadron Spectrum Collaboration], *Hybrid Baryons in QCD*, Phys. Rev. D **85**, 054016 (2012) [arXiv:1201.2349 [hep-ph]].
- [119] C. Alexandrou, G. Koutsou, J. Negele, Y. Proestos, and A. Tsapalis, *Nucleon to Delta transition form factors with N<sub>F</sub> = 2 + 1 domain wall fermions*, Phys. Rev. **D83**, 014501 (2011) [arXiv:1011.3233 [hep-lat]].
- [120] C. Alexandrou, E. B. Gregory, T. Korzec, G. Koutsou, J. W. Negele, *et al.*, *The Δ(1232) axial charge and form factors from lattice QCD*, Phys. Rev. Lett. **107** 141601 (2011) [arXiv:1106.6000].
- [121] R. Arthur *et al.* [RBC and UKQCD Collaboration], *Opening the Rome-Southampton window for operator mixing matrices*, Phys. Rev. D **85**, 014501 (2012) [arXiv:1109.1223 [hep-lat]].
- [122] R. Arthur, P. Boyle, D. Brommel, M. Donnellan, J. Flynn, *et al.*, [RBC and UKQCD Collaborations], *Lattice Results for Low Moments of Light Meson Distribution Amplitudes*, Phys. Rev. **D83** 074505 (2011) [arXiv:1011.5906 [hep-lat]].
- [123] Y. Aoki *et al.*, [RBC and UKQCD Collaborations], *Continuum Limit Physics from 2+1 Flavor Domain Wall QCD*, Phys. Rev. **D83** [arXiv:1011.0892 [hep-lat]]
- [124] Y. Aoki, R. Arthur, T. Blum, P. Boyle, D. Brommel, *et al.*, [RBC and UKQCD Collaborations], *Continuum Limit of B<sub>K</sub> from 2+1 Flavor Domain Wall QCD*, Phys. Rev. **D84**, 014503 (2011) [arXiv:1012.4178 [hep-lat]]
- [125] T. Blum, P. A. Boyle, N. H. Christ, N. Garron, E. Goode, T. Izubuchi, C. Jung and C. Kelly *et al.*, [RBC Collaboration], *The K → (ππ)<sub>I=2</sub> Decay Amplitude from Lattice QCD*, Phys. Rev. Lett. **108**, 141601 (2012) [arXiv:1111.1699 [hep-lat]].
- [126] T. Blum, P. Boyle, N. Christ, N. Garron, E. Goode, *et al.*, [RBC Collaboration], *K to ππ Decay amplitudes from Lattice QCD*, Phys. Rev. **D84** (2011) 114503 [arXiv:1106.2714 [hep-lat]].
- [127] A. Bazavov *et al.* [Fermilab Lattice and MILC Collaborations], *B- and D-meson decay constants from three-flavor lattice QCD*, Phys. Rev. D **85**, 114506 (2012) [arXiv:1112.3051 [hep-lat]].
- [128] L. Levkova and C. DeTar, *Charm annihilation effects on the hyperfine splitting in charmonium*, Phys. Rev. D **83**, 074504 (2011) [arXiv:1012.1837 [hep-lat]].
- [129] A. Bazavov *et al.* [MILC Collaboration], *Scaling studies of QCD with the dynamical HISQ action*, Phys. Rev. D **82**, 074501 (2010) [arXiv:1004.0342 [hep-lat]].
- [130] C. DeTar, L. Levkova, S. Gottlieb, U. M. Heller, J. E. Hetrick, R. Sugar and D. Toussaint, *QCD thermodynamics with nonzero chemical potential at N<sub>t</sub> = 6 and effects from heavy quarks*, [MILC Collaboraion], Phys. Rev. D **81**, 114504 (2010) [arXiv:1003.5682 [hep-lat]].

- [131] C. Bernard *et al.* [Fermilab Lattice and MILC Collaborations], *Tuning Fermilab Heavy Quarks in 2+1 Flavor Lattice QCD with Application to Hyperfine Splittings*, Phys. Rev. D **83**, 034503 (2011) [arXiv:1003.1937 [hep-lat]].
- [132] A. Li *et al.* [xQCD Collaboration], *Overlap Valence on 2+1 Flavor Domain Wall Fermion Configurations with Deflation and Low-mode Substitution*, Phys. Rev. D **82**, 114501 (2010) [arXiv:1005.5424 [hep-lat]].
- [133] R. G. Edwards, J. J. Dudek, D. G. Richards and S. J. Wallace, [Hadron Spectrum Collaboration], *Excited state baryon spectroscopy from lattice QCD*, Phys. Rev. D **84**, 074508 (2011) [arXiv:1104.5152 [hep-ph]].
- [134] C. Morningstar, J. Bulava, J. Foley, K. J. Juge, D. Lenkner, M. Peardon and C. H. Wong, *Improved stochastic estimation of quark propagation with Laplacian Heaviside smearing in lattice QCD*, Phys. Rev. D **83**, 114505 (2011) [arXiv:1104.3870 [hep-lat]].
- [135] J. J. Dudek, R. G. Edwards, B. Joo, M. J. Peardon, D. G. Richards and C. E. Thomas, [Hadron Spectrum Collaboration], *Isoscalar meson spectroscopy from lattice QCD*, Phys. Rev. D **83**, 111502 (2011) [arXiv:1102.4299 [hep-lat]].
- [136] H. Na, C. T. H. Davies, E. Follana, J. Koponen, G. P. Lepage and J. Shigemitsu, [HPQCD Collaboration],  *$D \rightarrow \pi, \ell\nu$  Semileptonic Decays,  $|V_{cd}|$  and 2<sup>nd</sup> Row Unitarity from Lattice QCD*, Phys. Rev. D **84**, 114505 (2011) [arXiv:1109.1501 [hep-lat]].
- [137] C. McNeile, C. T. H. Davies, E. Follana, K. Hornbostel and G. P. Lepage, [HPQCD Collaboration], *High-Precision  $f_{B_s}$  and HQET from Relativistic Lattice QCD*, Phys. Rev. D **85**, 031503 (2012) [arXiv:1110.4510 [hep-lat]].
- [138] T. Bae, Y. -C. Jang, C. Jung, H. -J. Kim, J. Kim, J. Kim, K. Kim and S. Kim *et al.*, *Kaon B-parameter from improved staggered fermions in  $N_f = 2 + 1$  QCD*, arXiv:1111.5698 [hep-lat].
- [139] S. R. Beane, E. Chang, W. Detmold, H. W. Lin, T. C. Luu, K. Orginos, A. Parreno and M. J. Savage *et al.*, [NPLQCD Collaboration], *High Statistics Analysis using Anisotropic Clover Lattices: (IV) Volume Dependence of Light Hadron Masses*, Phys. Rev. D **84**, 014507 (2011) [arXiv:1104.4101 [hep-lat]].
- [140] E. B. Gregory, C. T. H. Davies, I. D. Kendall, J. Koponen, K. Wong, E. Follana, E. Gamiz, G. P. Lepage, E. Mueller, H. Na, and J. Shigemitsu, [HPQCD Collaboration], *Precise  $B$ ,  $B_s$  and  $B_c$  meson spectroscopy from full lattice QCD*, Phys. Rev. D **83**, 014506 (2011) [arXiv:1010.3848 [hep-lat]].
- [141] R. Babich, R. C. Brower, M. A. Clark, G. T. Fleming, J. C. Osborn, C. Rebbi and D. Schaich, *Exploring strange nucleon form factors on the lattice*, Phys. Rev. D **85**, 054510 (2012) [arXiv:1012.0562 [hep-lat]].
- [142] S. R. Beane, E. Chang, W. Detmold, B. Joo, H. W. Lin, T. C. Luu, K. Orginos and A. Parreno *et al.*, *Present Constraints on the H-dibaryon at the Physical Point from Lattice QCD*, Mod. Phys. Lett. A **26**, 2587 (2011) [arXiv:1103.2821 [hep-lat]].
- [143] Silas R. Beane, William Detmold, Huey-Wen Lin, Thomas C. Luu, Kostas Orginos, Martin J. Savage, Aaron Torok, Andre Walker-Loud. [NPLQCD Collaboration], *High Statistics Analysis using Anisotropic Clover Lattices: (III) Baryon-Baryon Interactions*, Phys. Rev. **D81**:054505,2010. arXiv:0912.4243 [hep-lat] .

- [144] C. T. H. Davies *et al.* [HPQCD Collaboration], *Precise determination of the lattice spacing in full lattice QCD*, Phys. Rev. **D81**, 034506 (2010). [arXiv:0910.1229 [hep-lat]].
- [145] C. T. H. Davies, C. McNeile, K. Y. Wong, E. Follana, R. Horgan, K. Hornbostel, G. P. Lepage, J. Shigemitsu *et al.*, [HPQCD Collaboration], *Precise Charm to Strange Mass Ratio and Light Quark Masses from Full Lattice QCD*, Phys. Rev. Lett. **104**, 132003 (2010). [arXiv:0910.3102 [hep-ph]].
- [146] E. B. Gregory, C. T. H. Davies, E. Follana, E. Gamiz, I. D. Kendall, G. P. Lepage, H. Na, J. Shigemitsu *et al.*, [HPQCD Collaboration], *A Prediction of the  $B^*(c)$  mass in full lattice QCD*, Phys. Rev. Lett. **104**, 022001 (2010). [arXiv:0909.4462 [hep-lat]].
- [147] S. R. Beane *et al.* [NPLQCD Collaboration], *Evidence for a Bound  $H$ -dibaryon from Lattice QCD*, Phys. Rev. Lett. **106**, 162001 (2011) [arXiv:1012.3812 [hep-lat]].
- [148] The MILC Collaboration: A. Bazavov, C. Bernard, C. DeTar, Steven Gottlieb, U.M. Heller, J.E. Hetrick, J. Laiho, L. Levkova, P.B. Mackenzie, M.B. Oktay, R. Sugar, D. Toussaint, and R.S. Van de Water, *Full nonperturbative QCD simulations with 2+1 flavors of improved staggered quarks*, Rev. Mod. Phys. **82**, 1349-1417 (2010) [arXiv:0903.3598].
- [149] T. Burch, C. DeTar, M. Di Pierro, A.X. El-Khadra, E.D. Freeland, Steven Gottlieb, A.S. Kronfeld, L. Levkova, P.B. Mackenzie, J.N. Simone, [Fermilab Lattice and MILC Collaborations], *Quarkonium mass splittings in three-flavor lattice QCD*, Phys. Rev. **D81**, 034508 (2010) [arXiv:0912.2701].
- [150] MILC collaboration: A. Bazavov, C. Bernard, B. Billeter, C. DeTar, Steven Gottlieb, U. M. Heller, J. E. Hetrick, J. Laiho, L. Levkova, M.B. Oktay, J. Osborn, R. L. Sugar, D. Toussaint, R. S. Van de Water, *Topological susceptibility with the asqtad action*, Phys. Rev. **D81** 114501 (2010) [arXiv:1003.5695].
- [151] MILC collaboration: A. Bazavov, C. Bernard, C. DeTar, W. Freeman, Steven Gottlieb, U. M. Heller, J. E. Hetrick, J. Laiho, L. Levkova, M. Oktay, J. Osborn, R.L. Sugar, D. Toussaint, R.S. Van de Water, [MILC Collaboration], *Scaling studies of QCD with the dynamical HISQ action*, Phys. Rev. D **82**, 074501 (2010) [arXiv:1004.0342].
- [152] T. Bae, Y. -C. Jang, C. Jung, H. -J. Kim, J. Kim, K. Kim, W. Lee, S. R. Sharpe *et al.*,  *$B_K$  using HYP-smearred staggered fermions in  $N_f = 2 + 1$  unquenched QCD*, Phys. Rev. **D82**, 114509 (2010). [arXiv:1008.5179 [hep-lat]].
- [153] M. Cheng, S. Datta, A. Francis, J. van der Heide, C. Jung, O. Kaczmarek, F. Karsch, E. Laermann *et al.*, *Meson screening masses from lattice QCD with two light and the strange quark*, Eur. Phys. J. **C71**, 1564 (2011). [arXiv:1010.1216 [hep-lat]].
- [154] E. B. Gregory, C. T. H. Davies, I. D. Kendall, J. Koponen, K. Wong, E. Follana, E. Gamiz, G. P. Lepage *et al.*, [HPQCD Collaboration], *Precise  $B$ ,  $B_s$  and  $B_c$  meson spectroscopy from full lattice QCD*, Phys. Rev. **D83**, 014506 (2011). [arXiv:1010.3848 [hep-lat]].
- [155] H. Na, C. T. H. Davies, E. Follana, G. P. Lepage, J. Shigemitsu, [HPQCD Collaboration], *The  $D \rightarrow K, lv$  Semileptonic Decay Scalar Form Factor and  $|V_{cs}|$  from Lattice QCD*, Phys. Rev. **D82**, 114506 (2010). [arXiv:1008.4562 [hep-lat]].
- [156] C. T. H. Davies, C. McNeile, E. Follana, G. P. Lepage, H. Na, J. Shigemitsu, [HPQCD Collaboration], *Update: Precision  $D_s$  decay constant from full lattice QCD using very fine lattices*, Phys. Rev. **D82**, 114504 (2010). [arXiv:1008.4018 [hep-lat]].

- [157] C. McNeile, C. T. H. Davies, E. Follana, K. Hornbostel, G. P. Lepage, [HPQCD Collaboration], *High-Precision  $c$  and  $b$  Masses, and QCD Coupling from Current-Current Correlators in Lattice and Continuum QCD*, Phys. Rev. **D82**, 034512 (2010). [arXiv:1004.4285 [hep-lat]].
- [158] E. Gamiz *et al.* [ HPQCD Collaboration ], *Neutral B Meson Mixing in Unquenched Lattice QCD*, Phys. Rev. **D80**, 014503 (2009). [arXiv:0902.1815 [hep-lat]].
- [159] The Fermilab Lattice and MILC Collaborations: C. Bernard, C. DeTar, M. Di Pierro, A.X. El-Khadra, R.T. Evans, E.D. Freeland, E. Gamiz, Steven Gottlieb, U.M. Heller, J.E. Hetrick, A.S. Kronfeld, J. Laiho, L. Levkova, P.B. Mackenzie, M. Okamoto, M.B. Oktay, J.N. Simone, R. Sugar, D. Toussaint, R.S. Van de Water, *Visualization of semileptonic form factors from lattice QCD*, Phys. Rev. **D80**, 034026, (2009) [arXiv:0906.2498].
- [160] The Fermilab Lattice and MILC Collaborations: C. Bernard, C. DeTar, M. Di Pierro, A.X. El-Khadra, R.T. Evans, E.D. Freeland, E. Gamiz, Steven Gottlieb, U.M. Heller, J.E. Hetrick, A.S. Kronfeld, J. Laiho, L. Levkova, P.B. Mackenzie, M. Okamoto, J. Simone, R. Sugar, D. Toussaint, R.S. Van de Water, [Fermilab Lattice and MILC Collaborations], *The  $B \rightarrow D^* \ell \nu$  form factor at zero recoil from three-flavor lattice QCD: A model independent determination of  $|V_{cb}|$* , Phys. Rev. **D79**, 014506 (2009) [arXiv:0808.2519].
- [161] The Fermilab Lattice and MILC Collaborations: Jon A. Bailey, C. Bernard, C. DeTar, M. Di Pierro, A. X. El-Khadra, R. T. Evans, E. D. Freeland, E. Gamiz, Steven Gottlieb, U. M. Heller, J. E. Hetrick, A. S. Kronfeld, J. Laiho, L. Levkova, P. B. Mackenzie, M. Okamoto, J. N. Simone, R. Sugar, D. Toussaint, R. S. Van de Water, *The  $B \rightarrow \pi \ell \nu$  semileptonic form factor from three-flavor lattice QCD: A model-independent determination of  $|V_{ub}|$* , Phys. Rev. **D79**, 054507 (2009) [arXiv:0811.3640].
- [162] T. Yamazaki *et al.* [RBC+UKQCD Collaboration], *Nucleon axial charge in 2+1 flavor dynamical lattice QCD with domain wall fermions*, Phys. Rev. Lett. **100**, 171602 (2008) arXiv:0801.4016 [hep-lat].
- [163] C. Aubin, J. Laiho and R. S. Van de Water, *Discretization effects and the scalar meson correlator in mixed-action lattice simulations*, Phys. Rev. D **77**, 114501 (2008) arXiv:0803.0129 [hep-lat].
- [164] Silas R. Beane, Kostas Orginos, and Martin J. Savage. [NPLQCD Collaboration], *Hadronic Interactions from Lattice QCD*, *Int. J. Mod. Phys. E* **17**, 1157 (2008) arXiv:0805.4629v1 (hep-lat).
- [165] William Detmold, Kostas Orginos, Martin J. Savage, and Andre Walker-Loud. [NPLQCD Collaboration], *Kaon Condensation with Lattice QCD*, Phys. Rev. **D78**:054514 (2008) arXiv:0807.1856 [hep-lat].
- [166] William Detmold and Martin J. Savage, [NPLQCD Collaboration], *Color Screening by Pions*, Phys. Rev. Lett. **102**:032004 (2009). arXiv.org/abs/0809.0892 [hep-lat].
- [167] W. Detmold, M. J. Savage, A. Torok, S. R. Beane, T. C. Luu, K. Orginos and A. Parreno, [NPLQCD Collaboration], *Multi-Pion States in Lattice QCD and the Charged-Pion Condensate*, Phys. Rev. D **78**, 014507 (2008) [arXiv:0803.2728 [hep-lat]].
- [168] H. -W. Lin, S. D. Cohen, R. G. Edwards and D. G. Richards, [Hadron Spectrum Collaboration], *First Lattice Study of the  $N - P(11)(1440)$  Transition Form Factors*, Phys. Rev. D **78**, 114508 (2008) [arXiv:0803.3020 [hep-lat]].

- [169] R. G. Edwards, B. Joo and H. -W. Lin, [Hadron Spectrum Collaboration], *Tuning for Three-flavors of Anisotropic Clover Fermions with Stout-link Smearing*, Phys. Rev. D **78**, 054501 (2008) [arXiv:0803.3960 [hep-lat]].
- [170] C. Allton *et al.* [RBC-UKQCD Collaboration], “Physical Results from 2+1 Flavor Domain Wall QCD and SU(2) Chiral Perturbation Theory,” Phys. Rev. D **78**, 114509 (2008) [arXiv:0804.0473 [hep-lat]].
- [171] M. Cheng, P. Hengge, C. Jung, F. Karsch, O. Kaczmarek, E. Laermann, R. D. Mawhinney, C. Miao *et al.*, *Baryon Number, Strangeness and Electric Charge Fluctuations in QCD at High Temperature*, Phys. Rev. **D79**, 074505 (2009). [arXiv:0811.1006 [hep-lat]].