

## USQCD Publications—2020

62. J. M. Flynn *et al.* [RBC and UKQCD Collaborations], “Nonperturbative calculations of form factors for exclusive semileptonic  $B_{(s)}$  decays,” *PoS ICHEP 2020*, 436 (2021) [[arXiv:2012.04323 \[hep-ph\]](#)].
61. C. T. Johnson *et al.* [Hadron Spectrum Collaboration], “Excited  $J^{--}$  meson resonances at the SU(3) flavor point from lattice QCD,” *Phys. Rev. D* **103**, 074502 (2021) [[arXiv:2012.00518 \[hep-lat\]](#)].
60. H. W. Lin, J. W. Chen and R. Zhang, “Lattice nucleon isovector unpolarized parton distribution in the physical-continuum limit,” [arXiv:2011.14971 \[hep-lat\]](#).
59. S. Mondal *et al.* [Nucleon Matrix Elements (NME) Collaboration], “Nucleon momentum fraction, helicity and transversity from 2+1-flavor lattice QCD,” *JHEP* **2104**, 044 (2021) [[arXiv:2011.12787 \[hep-lat\]](#)].
58. O. Witzel *et al.* [Lattice Strong Dynamics Collaboration], “Composite Higgs scenario in mass-split models,” *PoS ICHEP 2020*, 675 (2021) [[arXiv:2011.05175 \[hep-ph\]](#)].
57. H.-T. Ding, S.-T. Li, S. Mukherjee, A. Tomiya, X.-D. Wang and Y. Zhang, “Correlated Dirac eigenvalues and axial anomaly in chiral symmetric QCD,” *Phys. Rev. Lett.* **126**, 082001 (2021) [[arXiv:2010.14836 \[hep-lat\]](#)].
56. A. Kumar, A. Majumder and J. H. Weber, “Jet transport coefficient  $\hat{q}$  in (2+1)-flavor lattice QCD,” [arXiv:2010.14463 \[hep-lat\]](#).
55. Y. Lin, A. S. Meyer, S. Gottlieb, C. Hughes, A. S. Kronfeld, J. N. Simone and A. Strelchenko, “Computing nucleon charges with highly improved staggered quarks,” *Phys. Rev. D* **103**, 054510 (2021) [[arXiv:2010.10455 \[hep-lat\]](#)].
54. T. Khan, D. Richards and F. Winter, “The positive-parity baryon spectrum and the role of hybrid baryons,” [arXiv:2010.03052 \[hep-lat\]](#).
53. M. Golterman, W. I. Jay, E. T. Neil, Y. Shamir and B. Svetitsky, “Low-energy constant  $L_{10}$  in a two-representation lattice theory,” *Phys. Rev. D* **103**, 074509 (2021) [[arXiv:2010.01920 \[hep-lat\]](#)].
52. S. Catterall, J. Giedt, R. G. Jha, D. Schaich and T. Wiseman, “Three-dimensional super Yang-Mills theory on the lattice and dual black branes,” *Phys. Rev. D* **102**, 106009 (2020) [[arXiv:2010.00026 \[hep-th\]](#)].
51. C. Alexandrou, M. Constantinou, K. Hadjyianakou, K. Jansen and F. Manigrasso, “Flavor decomposition for the proton helicity parton distribution functions,” *Phys. Rev. Lett.* **126**, 102003 (2021) [[arXiv:2009.13061 \[hep-lat\]](#)].
50. M. Illa *et al.* [NPLQCD Collaboration], “Low-energy scattering and effective interactions of two baryons at  $m_\pi \sim 450$  MeV from lattice quantum chromodynamics,” *Phys. Rev. D* **103**, 054508 (2021) [[arXiv:2009.12357 \[hep-lat\]](#)].
49. C. Egerer, R. G. Edwards, K. Orginos and D. G. Richards, “Distillation at high momentum,” *Phys. Rev. D* **103**, 034502 (2021) [[arXiv:2009.10691 \[hep-lat\]](#)].
48. A. J. Woss *et al.* [Hadron Spectrum Collaboration], “Decays of an exotic  $1^{-+}$  hybrid meson resonance in QCD,” *Phys. Rev. D* **103**, 054502 (2021) [[arXiv:2009.10034 \[hep-lat\]](#)].

47. S. Meinel and G. Rendon, “ $\Lambda_b \rightarrow \Lambda^*(1520)\ell^+\ell^-$  form factors from lattice QCD,” *Phys. Rev. D* **103**, 074505 (2021) [[arXiv:2009.09313 \[hep-lat\]](#)].
46. S. Catterall, J. Giedt and G. C. Toga, “Lattice  $\mathcal{N} = 4$  super Yang-Mills at strong coupling,” *JHEP* **2012**, 140 (2020) [[arXiv:2009.07334 \[hep-lat\]](#)].
45. W. Detmold, M. Illa, D. J. Murphy, P. Oare, K. Orginos, P. E. Shanahan, M. L. Wagman and F. Winter, “Lattice QCD constraints on the parton distribution functions of  ${}^3\text{He}$ ,” [arXiv:2009.05522 \[hep-lat\]](#).
44. M. T. Hansen *et al.* [Hadron Spectrum Collaboration], “Energy-dependent  $\pi^+\pi^+\pi^+$  scattering amplitude from QCD,” *Phys. Rev. Lett.* **126**, 012001 (2021) [[arXiv:2009.04931 \[hep-lat\]](#)].
43. H. W. Lin, “Nucleon tomography and generalized parton distribution at physical pion mass from lattice QCD,” [arXiv:2008.12474 \[hep-ph\]](#).
42. C. Alexandrou, K. Cichy, M. Constantinou, K. Hadjyiannakou, K. Jansen, A. Scapellato and F. Stoeffens, “Unpolarized and helicity generalized parton distributions of the proton within lattice QCD,” *Phys. Rev. Lett.* **125**, 262001 (2020) [[arXiv:2008.10573 \[hep-lat\]](#)].
41. G. K. C. Cheung *et al.* [Hadron Spectrum Collaboration], “ $DK I = 0, D\bar{K} I = 0, 1$  scattering and the  $D_{s0}^*(2317)$  from lattice QCD,” *JHEP* **2102**, 100 (2021) [[arXiv:2008.06432 \[hep-lat\]](#)].
40. M. Engelhardt, J. R. Green, N. Hasan, S. Krieg, S. Meinel, J. Negele, A. Pochinsky and S. Syritsyn, “From Ji to Jaffe-Manohar orbital angular momentum in lattice QCD using a direct derivative method,” *Phys. Rev. D* **102**, 074505 (2020) [[arXiv:2008.03660 \[hep-lat\]](#)].
39. S. M. Ryan *et al.* [Hadron Spectrum Collaboration], “Excited and exotic bottomonium spectroscopy from lattice QCD,” *JHEP* **2102**, 214 (2021) [[arXiv:2008.02656 \[hep-lat\]](#)].
38. R. Larsen, S. Meinel, S. Mukherjee and P. Petreczky, “Bethe-Salpeter amplitudes of Upsilon,” *Phys. Rev. D* **102**, 114508 (2020) [[arXiv:2008.00100 \[hep-lat\]](#)].
37. Z. Fan, R. Zhang and H. W. Lin, “Nucleon gluon distribution function from 2+1+1-flavor lattice QCD,” [arXiv:2007.16113 \[hep-lat\]](#).
36. K. F. Liu, “PDF in PDFs from hadronic tensor and LaMET,” *Phys. Rev. D* **102**, 074502 (2020) [[arXiv:2007.15075 \[hep-ph\]](#)].
35. X. Gao *et al.*, “Valence parton distribution of the pion from lattice QCD: Approaching the continuum limit,” *Phys. Rev. D* **102**, 094513 (2020) [[arXiv:2007.06590 \[hep-lat\]](#)].
34. T. Appelquist *et al.* [Lattice Strong Dynamics Collaboration], “Near-conformal dynamics in a chirally broken system,” *Phys. Rev. D* **103**, 014504 (2021) [[arXiv:2007.01810 \[hep-ph\]](#)].
33. G. Rendon *et al.*, “ $I = 1/2$   $S$ -wave and  $P$ -wave  $K\pi$  scattering and the  $\kappa$  and  $K^*$  resonances from lattice QCD,” *Phys. Rev. D* **102**, 114520 (2020) [[arXiv:2006.14035 \[hep-lat\]](#)].
32. G. Wang *et al.* [ $\chi$ QCD Collaboration], “Lattice calculation of pion form factor with overlap fermions,” [arXiv:2006.05431 \[hep-ph\]](#).
31. S. Mondal, R. Gupta, S. Park, B. Yoon, T. Bhattacharya and H. W. Lin, “Moments of nucleon isovector structure functions in 2 + 1 + 1-flavor QCD,” *Phys. Rev. D* **102**, 054512 (2020) [[arXiv:2005.13779 \[hep-lat\]](#)].

30. R. Zhang, C. Honkala, H. W. Lin and J. W. Chen, “Pion and kaon distribution amplitudes in the continuum limit,” *Phys. Rev. D* **102**, 094519 (2020) [[arXiv:2005.13955 \[hep-lat\]](#)].
29. M. Asaduzzaman, S. Catterall, J. Hubisz, R. Nelson and J. Unmuth-Yockey, “Holography on tessellations of hyperbolic space,” *Phys. Rev. D* **102**, 034511 (2020) [[arXiv:2005.12726 \[hep-lat\]](#)].
28. J. Berges, M. P. Heller, A. Mazeliauskas and R. Venugopalan, “Thermalization in QCD: Theoretical approaches, phenomenological applications, and interdisciplinary connections,” [arXiv:2005.12299 \[hep-th\]](#).
27. R. Zhang, H. W. Lin and B. Yoon, “Probing nucleon strange and charm distributions with lattice QCD,” [arXiv:2005.01124 \[hep-lat\]](#).
26. T. DeGrand, “Topological susceptibility in QCD with two flavors and 3–5 colors: A pilot study,” *Phys. Rev. D* **101**, 114509 (2020) [[arXiv:2004.09649 \[hep-lat\]](#)].
25. W. Detmold *et al.* [NPLQCD Collaboration], “Neutrinoless double beta decay from lattice QCD: The long-distance  $\pi^- \rightarrow \pi^+ e^- e^-$  amplitude,” [arXiv:2004.07404 \[hep-lat\]](#).
24. S. Bhattacharya, K. Cichy, M. Constantinou, A. Metz, A. Scapellato and F. Steffens, “Insights on proton structure from lattice QCD: The twist-3 parton distribution function  $g_T(x)$ ,” *Phys. Rev. D* **102**, 111501 (2020) [[arXiv:2004.04130 \[hep-lat\]](#)].
23. B. Joó, J. Karpie, K. Orginos, A. V. Radyushkin, D. G. Richards and S. Zafeiropoulos, “Parton distribution functions from Ioffe Time pseudodistributions from lattice calculations: Approaching the physical point,” *Phys. Rev. Lett.* **125**, 232003 (2020) [[arXiv:2004.01687 \[hep-lat\]](#)].
22. A. Hasenfratz, C. Rebbi and O. Witzel, “Gradient flow step-scaling function for SU(3) with ten fundamental flavors,” *Phys. Rev. D* **101**, 114508 (2020) [[arXiv:2004.00754 \[hep-lat\]](#)].
21. A. Hasenfratz and O. Witzel, “Dislocations under gradient flow and their effect on the renormalized coupling,” *Phys. Rev. D* **103**, 034505 (2021) [[arXiv:2004.00758 \[hep-lat\]](#)].
20. H. W. Lin, J. W. Chen, Z. Fan, J. H. Zhang and R. Zhang, “Valence-quark distribution of the kaon and pion from lattice QCD,” *Phys. Rev. D* **103**, 014516 (2021) [[arXiv:2003.14128 \[hep-lat\]](#)].
19. S. R. Beane *et al.* [NPLQCD and QCDSF Collaborations], “Charged multihadron systems in lattice QCD+QED,” *Phys. Rev. D* **103**, 054504 (2021) [[arXiv:2003.12130 \[hep-lat\]](#)].
18. X. Feng, M. Gorchtein, L. C. Jin, P. X. Ma and C. Y. Seng, “First-principles calculation of electroweak box diagrams from lattice QCD,” *Phys. Rev. Lett.* **124**, 192002 (2020) [[arXiv:2003.09798 \[hep-lat\]](#)].
17. T. Bhattacharya *et al.* [LANL/SWME Collaboration], “Semileptonic  $B \rightarrow D^{(*)}\ell\nu$  decay form factors using the Oktay-Kronfeld action,” *PoS LATTICE* **2019**, 056 (2020) [[arXiv:2003.09206 \[hep-lat\]](#)].
16. O. Kaczmarek, F. Karsch, A. Lahiri, L. Mazur and C. Schmidt, “QCD phase transition in the chiral limit,” [arXiv:2003.07920 \[hep-lat\]](#).
15. C. Lehner and A. S. Meyer, “Consistency of hadronic vacuum polarization between lattice QCD and the  $R$  ratio,” *Phys. Rev. D* **101**, 074515 (2020) [[arXiv:2003.04177 \[hep-lat\]](#)].
14. R. S. Sufian *et al.*, “Constraints on charm-anticharm asymmetry in the nucleon from lattice QCD,” *Phys. Lett. B* **808**, 135633 (2020) [[arXiv:2003.01078 \[hep-lat\]](#)].

13. T. Bhattacharya, R. Gupta and B. Yoon, “Recent results of nucleon structure & matrix element calculations,” *PoS LATTICE* **2019**, 247 (2020) [[arXiv:2003.08490 \[hep-lat\]](#)].
12. M. Ciemala *et al.*, “Testing *ab initio* nuclear structure in neutron-rich nuclei: lifetime measurements of second  $2^+$  states in  $^{16}\text{C}$  and  $^{20}\text{O}$ ,” *Phys. Rev. C* **101**, 021303 (2020) [[arXiv:2002.04814 \[nucl-ex\]](#)].
11. S. Park *et al.* [LANL-SWME Collaboration], “Leptonic decays of  $B_{(s)}$  and  $D_{(s)}$  using the OK action,” *PoS LATTICE* **2019**, 050 (2020) [[arXiv:2002.04755 \[hep-lat\]](#)].
10. Z. Fodor, K. Holland, J. Kuti and C. H. Wong, “Dilaton EFT from  $p$ -regime to RMT in the  $\varepsilon$ -regime,” *PoS LATTICE* **2019**, 246 (2020) [[arXiv:2002.05163 \[hep-lat\]](#)].
9. S. Park, T. Bhattacharya, R. Gupta, Y. C. Jang, B. Joo, H. W. Lin and B. Yoon, “Nucleon charges and form factors using clover and HISQ ensembles,” *PoS LATTICE* **2019**, 136 (2020) [[arXiv:2002.02147 \[hep-lat\]](#)].
8. B. Yoon, T. Bhattacharya, V. Cirigliano and R. Gupta, “Neutron electric dipole moments with clover fermions,” *PoS LATTICE* **2019**, 243 (2020) [[arXiv:2003.05390 \[hep-lat\]](#)].
7. D. Schaich [Lattice Strong Dynamics Collaboration], “Stealth dark matter and gravitational waves,” *PoS LATTICE* **2019**, 068 (2020) [[arXiv:2002.00187 \[hep-lat\]](#)].
6. C. Shugert *et al.*, “Pion valence quark PDF from lattice QCD,” [arXiv:2001.11650 \[hep-lat\]](#).
5. Y. C. Jang, R. Gupta, T. Bhattacharya, S. Park, B. Yoon and H. W. Lin, “Nucleon axial form factors from clover fermion on 2+1+1-flavor HISQ lattice,” *PoS LATTICE* **2019**, 131 (2020) [[arXiv:2001.11592 \[hep-lat\]](#)].
4. A. Bazavov *et al.*, “Skewness, kurtosis, and the fifth and sixth order cumulants of net baryon-number distributions from lattice QCD confront high-statistics STAR data,” *Phys. Rev. D* **101**, 074502 (2020) [[arXiv:2001.08530 \[hep-lat\]](#)].
3. A. J. Woss *et al.* [Hadron Spectrum Collaboration], “Efficient solution of the multichannel Lüscher determinant condition through eigenvalue decomposition,” *Phys. Rev. D* **101**, 114505 (2020) [[arXiv:2001.08474 \[hep-lat\]](#)].
2. N. H. Christ, X. Feng, L. Jin, C. Tu and Y. Zhao, “Calculating the two-photon contribution to  $\pi^0 \rightarrow e^+e^-$  decay amplitude,” *PoS LATTICE* **2019**, 097 (2020) [[arXiv:2001.05642 \[hep-lat\]](#)].
1. R. S. Sufian *et al.*, “Pion valence quark distribution from current-current correlation in lattice QCD,” *Phys. Rev. D* **102**, 054508 (2020) [[arXiv:2001.04960 \[hep-lat\]](#)].

INSPIRE search “find date 2020 and fulltext USQCD” includes papers using the USQCD software stack and/or data generated on USQCD computing resources.

May 12, 2021

links updated May 3, 2023