Curriculum Vitae of Yasumichi Aoki

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Research Interest: Lattice Gauge Theory, Hadron Phenomenology, Chiral Fermions.

Education and Degrees

Jun. 1996	:	PhD in Science, Doctoral Program in Physics, University of Tsukuba, Japan
Mar. 1992	:	MS in Physics, Doctoral Program in Physics, University of Tsukuba, Japan
Mar. 1990	:	BS in Physics, College of Natural Sciences, University of Tsukuba, Japan

Professional Positions

Sep. 2006 – present	:	Research Fellow at RIKEN BNL Research Center, Brookhaven National Laboratory, USA
Aug. 2003 – Aug. 2006	:	Research Associate at University of Wuppertal, Germany
May. 2003 – Jul. 2003	:	Postdoctoral Fellow at Columbia University / RIKEN BNL Research Center, Brookhaven National Laboratory, USA
May. 2000 – Apr. 2003	:	Research Associate at RIKEN BNL Research Center, Brookhaven National Laboratory, USA
Apr. 1997 – Apr. 2000	:	Assistant (3 year research position) at the Center for Computational Physics, University of Tsukuba, Japan
Apr. 1996 – Mar. 1997	:	COE Research Fellow at the Center for Computational Physics, University of Tsukuba, Japan

Teaching Experience

(at Department of Math. and Natural Sciences, University Wuppertal)

yr 2005	:	Lecturer of an Introduction to Particle and Nuclear Physics for master course
yr 2003	:	Lecturer of Lattice Gauge Theory for master course

(at College of Natural Sciences, University of Tsukuba)

fy 1999	:	Lecturer of an Introduction to Computational Physics for 2nd-year undergraduates
fy 1999	:	Lecturer of an exercise class on Electromagnetism for 2nd-year undergraduates
fy 1997 and 1998	:	Lecturer of an exercise class on Mechanics and Electromagnetism for 1st-year undergraduates
fy 1993	:	Teaching Assistant to Quantum Mechanics I and II

Refereed Papers:

A-17. "Physical results from 2+1 flavor domain wall QCD and SU(2) chiral perturbation theory", C. Allton et al., Phys. Rev. D, **78** (2008) 054505-1–60, arXiv:0804.0473 [hep-lat].

A-16. "Non-perturbative renormalization of quark bilinear operators and B_K using domain wall fermions", Y. Aoki et al., Phys. Rev. D **78** (2008) 054510-1–28, arXiv:0712.1061 [hep-lat].

A-15. "Proton lifetime bounds from chirally symmetric lattice QCD", Y. Aoki et al., Phys. Rev. D **78** (2008) 054505-1–14, arXiv:0806.1031 [hep-lat].

A-14. "Nucleon axial charge in 2+1 flavor dynamical lattice QCD with domain wall fermions", T. Yamazaki et al., Phys. Rev. Lett. **100**, 171602-1–4 (2008), arXiv:0801.4016 [hep-lat].

A-13. "Proton decay matrix elements with domain-wall fermions", Y. Aoki, C. Dawson, J. Noaki, A. Soni, Phys. Rev. D **75** (2007) 014507-1–24 [hep-lat/0607002].

A-12. " The QCD transition temperature: results with physical masses in the continuum limit.", Y. Aoki, Z. Fodor, S. D. Katz and K. K. Szabó, Phys. Lett. B643 (2006) 46–54 [hep-lat/0609068].

A-11. "The order of the quantum chromodynamics transition predicted by the standard model of particle physics", Y. Aoki et al., Nature 443 (2006) 675–678 [hep-lat/0611014].

A-10. "The Kaon B-parameter from Quenched Domain-Wall QCD", RBC Collaboration (Y. Aoki et al.), Phys. Rev. D **73** (2006) 094507-1–33 [hep-lat/0508011].

A-9. "The equation of state in lattice QCD: with physical quark masses towards the continuum limit", Y. Aoki, Z. Fodor, S. Katz, K. Szabo, JHEP01(2006)089, [hep-lat/0510084].

A-8. "Lattice QCD with two dynamical flavors of domain wall fermions", RBC Collaboration (Y. Aoki et al.), Phys. Rev. D **72** (2005) 114505-1–33, [hep-lat/0411006].

A-7. "Domain wall fermions with improved gauge actions", RBC Collaboration (Y. Aoki et al.), Phys. Rev. D **69** (2004) 074504-1–18, [hep-lat/0211023].

A-6. "Calculation of Non-Leptonic Kaon Decay Amplitudes from $K \to \pi$ Matrix Elements in Quenched Domain-Wall QCD", CP-PACS Collaboration (J. I. Noaki et al.), Phys. Rev. D **68** (2003) 014501-1–36, [hep-lat/0108013].

A-5. "Kaon B parameter from quenched domain-wall QCD", CP-PACS Collaboration (A. Ali Khan et al.), Phys. Rev. D **64** (2001) 114506-1–21, [hep-lat/0105020].

A-4. "Chiral properties of domain-wall quarks in quenched QCD", CP-PACS Collaboration (A. Ali Khan et al.), Phys. Rev. D **63** (2001) 114504-1–19, [hep-lat/0007014].

A-3. "The end point of the first-order phase transition of the SU(2) gauge-Higgs model on a 4-dimensional isotropic lattice", Y. Aoki, F. Csikor, Z. Fodor, A. Ukawa, Phys. Rev. D **60** (1999) 013001-1–8, [hep-lat/9901021].

A-2. "Four-dimensional simulation of the hot electroweak phase transition with the SU(2) gauge-Higgs model", Yasumichi Aoki, Phys. Rev. D **56** (1997) 3860–3865, [hep-lat/9612023].

A-1. "Interface tension in SU(3) lattice gauge theory at finite temperatures on an $N_t = 2$ lattice", Yasumichi Aoki and Kazuyuki Kanaya, Phys. Rev. D **50** (1994) 6921–6930, [hep-lat/9312052].

Conference Proceedings

B-19. "Quark mass renormalization with non-exceptional momenta", Y. Aoki [RBC/UKQCD Collaborations], PoS LATTICE2008 2008 (222).

B-18. "Heavy-light matrix elements in static limit with domain wall fermions", Y. Aoki and J. Wennekers [RBC/UKQCD Collaborations], PoS LAT2007 2007 (345).

B-17. "$B-\overline{B}$ mixing with domain wall fermions in the static approximation", C. Albertus et al. [RBC/UKQCD Collaborations], PoS LAT2007 (2007) 376.

B-16. "QCD finite T transition: Comparison between Wilson and staggered results", Y. Aoki et al., PoS LAT2007 (2007) 232, arXiv:0711.0024 [hep-lat].

B-15. "Nucleon Decay Matrix Elements with $N_f = 0$ and 2 Domain-Wall Quarks", Yasumichi Aoki [RBC Collaboration], Nucl. Phys. B (Proc. Suppl.) **140** (2005) 405-407, [hep-lat/0409114].

B-14. "Nucleon Decay with Domain-Wall Fermions", RBC Collaboration (Yasumichi Aoki for the collaboration), Nucl. Phys. B (Proc. Suppl.) **129** (2004) 305-307, [hep-lat/0309152].

B-13. "Hadronic matrix elements of proton decay on the lattice", RBC Collaboration (Yasumichi Aoki for the collaboration), AIP Conf. Proc. 698 (2004) 243-246, [hep-lat/0309151].

B-12. "Nucleon decay matrix elements for domain-wall fermions", RBC Collaboration (Yasumichi Aoki for the collaboration), Nucl. Phys. B (Proc. Suppl.) **119** (2003) 380-382, [hep-lat/0210008].

B-11. "Hadron spectrum for quenched domain-wall fermions with DBW2 gauge action", RBC Collaboration (Yasumichi Aoki for the collaboration), Nucl. Phys. B (Proc. Suppl.) **106** (2002) 245-247, [hep-lat/0110143].

B-10. "Non-perturbative renormalization in domain-wall QCD by Schroedinger functional scheme", CP-PACS Collaboration (S. Aoki et al.), Nucl. Phys. B (Proc. Suppl.) **106** (2002) 844-846, [hep-lat/0112005].

B-9. "Calculation of $K \to \pi\pi$ decay amplitudes from $K \to \pi$ matrix elements in quenched domain-wall QCD", CP-PACS Collaboration (S. Aoki et al.), Nucl. Phys. B (Proc. Suppl.) **106** (2002) 332-334, [hep-lat/0110142].

B-8. "Chiral property of domain-wall fermion from eigenvalues of 4D Wilson-Dirac operator", CP-PACS Collaboration (S. Aoki et al.), Nucl. Phys. B (Proc. Suppl.) **106** (2002) 718-720, [hep-lat/0110126].

B-7. "Eigenvalues of the hermitian Wilson-Dirac operator and chiral properties of the domain-wall fermion", CP-PACS Collaboration (A. Ali Khan et al.), Nucl. Phys. B (Proc. Suppl.) **94** (2001) 725-728, [hep-lat/0011032].

B-6. "Calculation of $K \to \pi$ matrix elements in quenched domain-wall QCD", CP-PACS

Collaboration (A. Ali Khan et al.), Nucl. Phys. B (Proc. Suppl.) **94** (2001) 283-286, [hep-lat/0011007].

B-5. "Kaon B parameter from quenched domain-wall QCD", CP-PACS Collaboration (A. Ali Khan et al.), Nucl. Phys. B (Proc. Suppl.) **94** (2001) 287-290, [hep-lat/0010079].

B-4. "Quenched QCD with domain-wall fermions on coarse lattices", CP-PACS Collaboration (A. Ali Khan et al.), Nucl. Phys. B (Proc. Suppl.) **83** (2000) 591-593, [hep-lat/9909049].

B-3. "End point of the electroweak phase transition", Z. Fodor, F. Csikor, J. Heitger, Y. Aoki, A. Ukawa, [hep-ph/9901307].

B-2. "The end point of the first-order phase transition of the SU(2) gauge-Higgs model on a four-dimensional isotropic lattice", Y. Aoki, F. Csikor, Z. Fodor, A. Ukawa, Nucl. Phys. B (Proc. Suppl.) **73** (1999) 656–658, [hep-lat/9809122].

B-1. "Four-dimensional Simulation of the Hot Electroweak Phase Transition with the SU(2) Gauge-Higgs Model", Yasumichi Aoki, Nucl. Phys. B (Proc. Suppl.) **53** (1997) 609–611, [hep-lat/9608061].

Presentation in International Conferences and Workshops

(Proceedings number B-XX is shown where it is available.)

C-19. [B-18] "Heavy-light matrix elements in static limit with domain wall fermions", LATTICE 2008 (The XXVIth International Symposium on Lattice Field Theory) at Williamsburg, USA, 14 – 19 July, 2008.

C-18. "EoS with stout-link improved staggered fermions", Workshop on Hydrodynamics in Heavy Ion Collisions and QCD Equation of State, Brookhaven National Laboratory, 21-22 April, 2008.

C-17. "Nucleon Decay Matrix Elements on the Lattice", NNN07 (Workshop on Next Generation Nucleon decay and Neutrino Detectors), Hamamatsu, Japan, 2-5 Oct., 2007.

C-16. "Heavy-light matrix elements in static limit with $N_f = 2+1$ domain wall fermions", LATTICE 2007 (The XXVth International Symposium on Lattice Field Theory) at Regensburg, Germany, 30 July – 4 Aug., 2007.

C-15. "Proton Decay Matrix Elements", Joint Meeting of Pacific Region Particle Physics Communities [DPF2006+JPS2006], Honolulu, USA, 29 Oct.–3 Nov., 2006.

C-14. "The equation of state of the QCD plasma from lattice QCD", DESY Theory Workshop at DESY Hamburg, Germany, 27 – 30 September, 2005.

C-13. "2+1 flavor QCD thermodynamics with stout-link improved staggered fermions", LATTICE 2005 (The XXIIIth International Symposium on Lattice Field Theory) at Dublin, Ireland, 25 – 30 July, 2005.

C-12. "Nucleon Decay Matrix Elements", German-Japanese Symposium: Towards Precision Physics from Lattice QCD Simulated on Tera-Flops Computers, at DESY Zeuthen, Germany, 25 – 29 November, 2004.

C-11. [B-15], LATTICE 2004 (The XXIIth International Symposium on Lattice Field

Theory) at Batavia, IL, USA, 21 – 26 June, 2004.

C-10. [B-14] (poster), LATTICE 2003 (The XXIth International Symposium on Lattice Field Theory) at Tsukuba, Japan.

C-9. [B-13], CIPANP 2003 (Conference on the Intersections of Particle and Nuclear Physics) at New York, NY, USA, 19 – 24 May, 2003.

C-8. [B-12], LATTICE 2002 (The XXth International Symposium on Lattice Field Theory) at Cambridge, MA, USA.

C-7. "Hadron Spectrum for Quenched Domain-Wall fermions with DBW2 Gauge Action", INT Program "Lattice QCD and Hadron Phenomenology" at Institute of Nuclear Theory, Univ. Washington, Seattle, WA, USA, 19 – 27 Nov., 2001.

C-6. "Quenched Domain Wall QCD with DBW2 Gauge Action", First Joint Meeting of the Nuclear Physics Divisions of the APS and JPS, Maui, USA, 17 – 20, Oct., 2001.

C-5. [B-11], LATTICE 2001 (The XIXth International Symposium on Lattice Field Theory) at Berlin, Germany, 19 – 24 Aug., 2001.

C-4. "Chiral Properties of Domain-Wall Quarks in Quenched QCD", International School of Subnuclear Physics, 38th Course "Theory and Experiment Heading for New Physics", at Erice, Italy, 27 Aug. – 5 Sep., 2000.

C-3. [B-4], LATTICE '99 (The XVIIth International Symposium on Lattice Field Theory) at Pisa, Italy, 29 June – 3 July 1999.

C-2. [B-2], LATTICE '98 (The XVIth International Symposium on Lattice Field Theory) at Boulder, CO, USA, 13–18 July 1998.

C-1. [B-1], LATTICE '96 (The XIVth International Symposium on Lattice Field Theory) at St.Louis, MO, USA, 4–8 June 1996.

Presentation at the meeting of the Physical Society of Japan (JPS) and Workshops in Japan

D-10. "Improved RI-MOM scheme for quark mass renormalization", JPS, Yamagata, 20 Sep. 2008.

D-9. "$B^0-\overline{B^0}$ mixing in static limit with 2+1 flavor domain wall fermions", JPS, Sapporo, 22 Sep. 2007.

D-8. "Quenched Simulation of Domain-Wall QCD — overview and results at a strong coupling", CCP workshop "Recent Progress in Chiral Symmetry on the Lattice", Tsukuba, 9 Mar. 2000.

D-7. "Quenched QCD with domain-wall fermions", JPS, Shimane, 19 Sep. 1999.

D-6. "End point of the finite-temperature first-order phase transition of the electroweak theory with SU(2) gauge-Higgs model", JPS, Akita, 3 Oct. 1998.

D-5. "Hot Electroweak Phase transition with the SU(2) Gauge-Higgs Model on the Lattice", The Vth KEK meeting "CP violation and its origin", KEK, Tsukuba, Mar. 1997.

D-4. "Hot electroweak phase transition with SU(2) Higgs model", JPS, Saga, 7 Oct. 1996.

D-3. "Nature of the Hot Electroweak Phase Transition in the SU(2) Higgs Model", CCP workshop "Field theory on the lattice", Tsukuba, 6 Mar. 1996.

D-2. "Interface tension of the finite temperature phase transition of the pure SU(3) gauge theory", JPS, Sendai, 31 Mar. 1993.

D-1. "Interface tension at the confining transition of finite temperature QCD", JPS, Niigata, 4 Oct. 1992.

Seminars

E-8. "Hadronic Matrix Elements with Domain Wall Fermions: B^0–$\overline{B^0}$ mixing and Nucleon Decay"
Sep. 7, 2007, University of Tsukuba, Japan
Oct. 1, 2007, RIKEN, Wako Campus, Japan

E-7. "Nucleon decay matrix elements"
Dec. 10, 2004, Edinburgh University, UK.

E-6. "Domain-wall fermion and proton decay matrix element"
Jun. 1, 2004, University of Bielefeld, Germany.

E-5. "Analyzing QCD with Domain-Wall Fermions and an Improved Gauge Field on the Lattice"
Apr. 30, 2004, Tokyo Institute of Technology, Japan
Apr. 25, 2004, YITP, Kyoto University, Japan
Apr. 23, 2004, Hiroshima University, Japan
Apr. 18, 2004, University of Tsukuba, Japan
Apr. 15, 2004, RIKEN, Wako Campus, Japan

E-4. "Hadron spectrum for quenched domain-wall fermions with DBW2 gauge action",
Nov. 15, 2002, RIKEN-BNL Research Center, Brookhaven National Laboratory, USA.

E-3. "Chiral properties of domain-wall quarks in quenched QCD",
Nov. 30, 2000, RIKEN-BNL Research Center, Brookhaven National Laboratory, USA.

E-2. "Electroweak phase transition with the 4d SU(2) gauge-Higgs model",
Jul. 23, 1999, University of Tsukuba, Japan

E-1. "Hot Electroweak Phase Transition with the SU(2) Gauge-Higgs model on the Lattice"
Nov. 14, 1997, Hiroshima University, Japan
Jun. 17, 1996, Ochanomizu University, Japan
Apr. 23, 1996, KEK, Tsukuba, Japan

Organized Workshops

F-2. "Underground Detectors Investigating Grandunification", Brookhaven National Laboratory, Upton, NY, USA, 16 – 17 Oct., 2008, (Co-chair with: M. Diwan (BNL)).

F-1. "Large-Scale Computations in Nuclear Physics Using the QCDOC", Brookhaven National Laboratory, Upton, NY, USA, 26 – 28 Sep., 2002, (Co-organizer with: A. Baltz, M. Creutz (BNL), M. Gyulassy (Columbia), S. Ohta (KEK)).

Grants

G-3. JSPS "KEKENHI" Grant-in-Aid for Scientific Research (C), as PI, fy 2009-11.

G-2. "Proton decay matrix elements", as PI, USQCD project, fy 2008-9.

G-1. "Proton decay matrix elements", as PI, USQCD project, fy 2007-8.