

Alexey A. Petrov

Department of Physics and Astronomy
Wayne State University
Detroit, MI 48201

Telephone: 313-577-2739
Fax: 313-577-3732
e-mail: apetrov@wayne.edu

EMPLOYMENT

2006 - present Associate Professor
Department of Physics and Astronomy
Wayne State University, Detroit, Michigan

2001 - 2006 Assistant Professor
Department of Physics and Astronomy
Wayne State University, Detroit, Michigan

2000 - 2001 Postdoctoral Research Associate
Newman Laboratory of Nuclear Studies
Cornell University, Ithaca, New York

1997 - 2000 Postdoctoral Research Fellow
Department of Physics and Astronomy
Johns Hopkins University, Baltimore, Maryland

VISITING RESEARCH POSITIONS

2002-present Michigan Center for Theoretical Physics (continuous)
1998-2005 BNL, Jefferson Lab, FNAL, SLAC, INT

FELLOWSHIPS AND AWARDS

Campus Leadership Award	2007, Wayne State University
WSU Academy of Scholars'	2006, Wayne State University
Outstanding Junior Faculty Award	
NSF CAREER Award	2005, U.S. National Science Foundation
Excellence in Teaching Award	2004, College of Science, WSU
Frontier Science Golden Award	2002, INFN Frascati (Italy)
University Research Grant Award	2001, Wayne State University
University Council Fellowship	1990-1993, St. Petersburg Tech. University

EDUCATION

1995-1997 University of Massachusetts, Amherst (Ph.D. in Physics)
1993-1994 University of Massachusetts, Amherst (M.S. in Physics)
1988-1994 St. Petersburg Technical University, Russia
Diploma (Nuclear Physics), *Summa Cum Laude*

PROFESSIONAL TRAINING

1996 SLAC Summer Institute
1995 Theoretical Advanced Study Institute (U of Colorado)

RECENT PROFESSIONAL ACTIVITIES

Editorial Board Journal “*Advances in High Energy Physics*”
ISSN: 1687-7357

Convenor “*D, K, and tau*” parallel session.
Meeting of the Division of Particles and Fields,
American Physical Society, Honolulu, Hawaii, 2006

Organizer *1st Meeting of the APS Topical Group on Hadronic Physics*
Fermilab, Batavia, Illinois, 2004

Convenor *Charm inputs to CKM physics* working group
2nd Workshop on the CKM Unitarity Triangle, Durham, UK, 2003

Convenor *Charm quark parallel session.*
Meeting of the Division of Particles and Fields,
American Physical Society, Columbus, Ohio, 2000

Convenor *Hadronic B Meson Decays* working group.
BaBar Physics Workshops, 1997-1998

Member *Program Committee.*
APS Topical Group on Hadronic Physics, 2002-2006

Member *CESR Tau-Charm Factory* Task Force
Cornell University, 2000

Referee Physical Review Letters, Physical Review D, Eur. Phys. J.,
Journal of Physics G, Phys. Letters B
U.S. Department of Energy, National Science Foundation (proposals)

EXTERNAL FUNDING

Title: “CAREER: An Integrated Research and Education Program in Physics of Heavy Hadrons”,

Grant P.I.: Alexey A. Petrov

Source: National Science Foundation (PHY-0547794, 3/06-2/11)

Title: “Particle Physics Research Program”, Task-B (Theory)

Task P.I.: Alexey A. Petrov

Source: US Department of Energy (DE-FG02-96ER41005, 3/03-3/06) [renewed to 3/2009]

Title: “Research Program in Theoretical Particle Physics”,

Grant P.I.: Alexey A. Petrov

Source: National Science Foundation (PHY-0244853, 8/03-8/06)

Title: “REU Site for Undergraduate Research in Accelerator, Nuclear and Particle Physics”,

Grant P.I.: G. Bonvicini, co-P.I.: D. Cinabro, S. Gavin, A. A. Petrov, C. Pruneau

Source: National Science Foundation (PHY-0353994, 8/04-8/07)

INVITED COLLOQUIA (excluding home institution)

2005 Oakland University

2003 Taylor University

2002 Hillsdale College

2001 North Carolina State University, Wayne State University

INVITED SEMINARS (last 5 years, excluding home institution)

2007 Fermi National Accelerator Laboratory

2006 Cornell University, Ohio State University

2005 Michigan State University, University of Washington (INT program seminar)
University of Pittsburgh

2004 Fermi National Accelerator Laboratory

2003 Lawrence Berkeley National Laboratory, University of Michigan,
Ohio State University, University of Massachusetts

• Membership in Professional and Honor Societies:

American Physical Society, Sigma Xi, Sigma Pi Sigma

PUBLICATIONS

1. *Lifetime difference in B_s mixing: Standard Model and beyond*,
A. Badin, F. Gabbiani, and A. A. Petrov,
Phys. Lett. B **653**, 230 (2007), e-print Archive: ArXiv:0707.0294 [hep-ph]
2. *Implications of $D^0 - \bar{D}^0$ mixing for New Physics*,
E. Golowich, J. Hewett, S. Pakvasa and A. A. Petrov,
Accepted to Phys. Rev. D, e-print Archive: arXiv:0705.3650 [hep-ph]
3. *New Physics contributions to the lifetime difference in $D^0 - \bar{D}^0$ Mixing*,
E. Golowich, S. Pakvasa, and A. A. Petrov,
Phys. Rev. Lett. **98**, 181801 (2007), e-print Archive: hep-ph/0610039
4. *Neutrinos in a left-right model with a horizontal symmetry*,
K. Kiers, M. Assis, D. Simons, A. A. Petrov, and A. Soni,
Phys. Rev. D **73**, 033009 (2006), e-print Archive: hep-ph/0510274
5. *Short Distance Analysis of $D^0 - \bar{D}^0$ Mixing*,
E. Golowich and A. A. Petrov,
Phys. Lett. B **625**, 53 (2005), e-print Archive: hep-ph/0506185
6. *$X(3872)$: Hadronic molecules in effective field theory*,
M. T. AlFiky, F. Gabbiani and A. A. Petrov,
Phys. Lett. B **640**, 238 (2006), e-print Archive: hep-ph/0506141
7. *Higgs sector of the left-right model with explicit CP violation*,
K. Kiers, M. Assis and A. A. Petrov,
Phys. Rev. D **71**, 115015 (2005), e-print Archive: hep-ph/0503115
8. *Spectator effects and lifetimes of heavy hadrons*,
F. Gabbiani, A. I. Onishchenko and A. A. Petrov
Phys. Rev. D **70**, 094031 (2004), e-print Archive: hep-ph/0407004
9. *Hunting for CP violation with untagged charm decays*
A. A. Petrov
Phys. Rev. D **69**, 111901(R) (2004), e-print Archive: hep-ph/0403030
10. *The $D^0 - \bar{D}^0$ mass difference from a dispersion relation*
A. F. Falk, Y. Grossman, Z. Ligeti, Y. Nir and A. A. Petrov,
Phys. Rev. D **69**, 114021 (2004), e-print Archive: hep-ph/0402204

11. *Comment on the new $D_s^{(*)+}\pi^0$ resonances*
T. E. Browder, S. Pakvasa, A. A. Petrov
Phys. Lett. B **578**, 365 (2004), e-print Archive: hep-ph/0307054
12. *$B^0 - \bar{B}^0$ mixing beyond factorization in QCD sum rules*
J. G. Korner, A. I. Onishchenko, A. A. Petrov, A. A. Pivovarov
Phys. Rev. Lett. **91**, 192002 (2003), e-print Archive: hep-ph/0306032
13. *Λ_b lifetime puzzle in heavy-quark expansion*
F. Gabbiani, A. I. Onishchenko, A. A. Petrov,
Phys. Rev. D **68**, 114006 (2003), e-print Archive: hep-ph/0303235
14. *Lifetime differences in heavy mesons with time independent measurements*
D. Atwood, A. A. Petrov
Phys. Rev. D **71**, 054032 (2005), e-print Archive: hep-ph/0207165
15. *$SU(3)$ breaking and $D^0 - \bar{D}^0$ mixing*
A. F. Falk, Y. Grossman, Z. Ligeti, A. A. Petrov
Phys. Rev. D **65**, 054034 (2002), e-print Archive: hep-ph/0110317
16. *Comments on color suppressed hadronic B decays*
M. Neubert, A. A. Petrov
Phys. Lett. B **519**, 50 (2001), e-print Archive: hep-ph/0108103
17. *The potential for neutrino physics at muon colliders and dedicated high current muon storage rings*
I. Bigi, T. Bolton, J. Formaggio, D. Harris, J. Morfin, P. Spentzouris, J. Yu, B. Kayser, B.J. King, K. McFarland, Alexey A. Petrov, H. Schellman, M. Velasco, R. Shrock
Phys. Rept. 371, 151-230, 2002 e-print Archive: hep-ph/0106177
18. *Two-loop renormalization of heavy-light currents at order $1/m_Q$ in the heavy-quark expansion*
T. Becher, M. Neubert, A. A. Petrov
Nucl. Phys. B **611**, 367 (2001), e-print Archive: hep-ph/0012183
19. *Effects from the charm scale in $K^+ \rightarrow \pi^+ \nu \bar{\nu}$*
Adam F. Falk, Adam Lewandowski, Alexey A. Petrov
Phys. Lett. B **505**, 107 (2001), e-print Archive: hep-ph/0012099
20. *Lessons from CLEO and FOCUS measurements of $D^0 - \bar{D}^0$ mixing parameters*
S. Bergmann, Y. Grossman, Z. Ligeti, Y. Nir, A. A. Petrov
Phys. Lett. B **486**, 418 (2000), e-print Archive: hep-ph/0005181
21. *Measuring γ cleanly with CP-tagged B_s and B_d decays*
A. F. Falk, A. A. Petrov
Phys. Rev. Lett **85**, 252 (2000), e-print Archive: hep-ph/0003321

22. *Strong phases and $D^0 - \bar{D}^0$ mixing parameters*
A. F. Falk, Y. Nir, A. A. Petrov
JHEP 9912, 019 (1999), e-print Archive: hep-ph/9911369
23. *Phenomenology of V_{ub} from ratios of inclusive B decay rates*
J. Chay, A. F. Falk, M. Luke, A. A. Petrov
Phys. Rev. D61, 034020 (2000), e-print Archive: hep-ph/9907363
24. *Charmonium production at neutrino factories*
A. A. Petrov, T. Torma
Phys. Rev. D60, 093009 (1999), e-print Archive: hep-ph/9906254
25. *Measuring V_{ub} in inclusive B decays to charm*
A. F. Falk, A. A. Petrov
Phys. Rev. D61, 033003 (2000), e-print Archive: hep-ph/9903518
26. *Radiative leptonic B_c decays in effective field theory*
G. Chiladze, A. F. Falk, A. A. Petrov
Phys. Rev. D60, 034011 (1999), e-print Archive: hep-ph/9811405
27. *Hybrid charmonium production in B decays*
G. Chiladze, A. F. Falk, A. A. Petrov
Phys. Rev. D58, 034013 (1998), e-print Archive: hep-ph/9804248
28. *Can nearby resonances enhance $D^0 - \bar{D}^0$ mixing?*
E. Golowich, A. A. Petrov
Phys. Lett. B427, 172 (1998), e-print Archive: hep-ph/9802291
29. *Intrinsic charm of light mesons and CP violation in the heavy quark decay*
A. A. Petrov
Phys. Rev. D58, 054004 (1998), e-print Archive: hep-ph/9712497
30. *Final state interactions and New Physics in $B \rightarrow \pi K$ decays*
A. F. Falk, A. L. Kagan, Y. Nir, A. A. Petrov
Phys. Rev. D57, 4290 (1998), e-print Archive: hep-ph/9712225
31. *Theory and phenomenology of non-leptonic B meson decay*
A. A. Petrov
Ph. D. Dissertation (University of Massachusetts)
32. *η' production in B -decays: Standard Model vs. New Physics*
A. L. Kagan, A. A. Petrov
e-print Archive: hep-ph/9707354
33. *Dipenguin contribution to $D^0 - \bar{D}^0$ mixing*
A. A. Petrov
Phys. Rev. D56, 1685 (1997), e-print Archive: hep-ph/9703335

34. *How to trap a non-standard penguin? Isospin symmetry violations in B-decays with enhanced chromomagnetic dipole operator*
A. A. Petrov
Phys. Lett. B399, 172 (1997), e-print Archive: hep-ph/9612393
35. *Factorization in non-leptonic heavy meson decays*
J. F. Donoghue, A. A. Petrov
Phys. Lett. B393, 149 (1997), e-print Archive: hep-ph/9610473
36. *Final state rescattering as a contribution to $B \rightarrow \rho\gamma$*
J. F. Donoghue, E. Golowich, A. A. Petrov
Phys. Rev. D55, 2657 (1997), e-print Archive: hep-ph/9609530
37. *Systematics of soft final state interactions in B decay*
J. F. Donoghue, E. Golowich, A. A. Petrov, J. M. Soares
Phys. Rev. Lett. 77, 2178 (1996), e-print Archive: hep-ph/9604283
38. *Is $B \rightarrow X_s\gamma$ equal to $b \rightarrow s\gamma$? Spectator contributions to rare inclusive B decays*
J. F. Donoghue, A. A. Petrov
Phys. Rev. D53, 3664 (1996), e-print Archive: hep-ph/9510227

INTERNAL NOTES AND REPORTS

1. *Monte-Carlo event generator of inclusive electron-nucleon scattering*
P. V. Degtyarenko, A. A. Petrov
CLAS-NOTE 94-022 (Jefferson Lab internal note), Nov 1994.

BOOKS AND BOOK CHAPTERS

1. "The first meeting of the APS Topical Group on Hadronic Physics,"
Editors: Ted Barnes, Steve Godfrey, Alexey A Petrov and Eric Swanson
J. Phys.: Conf. Ser. 9 (2005)
2. "Hadronic B Meson Decays" (with I. Bigi, P. Rankin, R. Waldi, and D. Wyler) in *The BaBar Physics Book*, SLAC, 1998.

INVITED CONFERENCE PRESENTATIONS

1. *Final state interactions in B-decays*
The 2nd meeting of the APS Topical Group on Hadronic Physics
Nashville, TN, October 2006, (plenary)

2. *Physics of charm: mixing and CP-violation*
ITEP Meeting on the Future of Heavy Flavour Physics
Moscow, Russia, July 2006 (plenary)
3. *Charm mixing beyond the Standard Model*
International Workshop on Tau-Charm Physics (CHARM-2006)
Beijing, China, June 2006, Int. J. Mod. Phys. A21 (2006) 5686 (plenary)
4. *Heavy Meson Molecules in Effective Field Theory*
7th Workshop on Continuous Advances in QCD, Minneapolis, 2006
[hep-ph/0609215]
5. *Charm physics and CP violation*
6th International Conference on Hyperons, Charm and Beauty Hadrons
Chicago, IL, July 2004, [hep-ph/0409130] (plenary)
6. *Lifetimes of heavy hadrons*
6th Workshop on Continuous Advances in QCD, Minneapolis, May 2004
[hep-ph/0408093]
7. *Charm physics: Theoretical review*
Flavor Physics and CP Violation (FPCP 2003), Paris, France, 3-6 Jun 2003
[hep-ph/0311371] (plenary)
8. *Charm phenomenology for CKM parameters*
2nd Workshop on the CKM Unitarity Triangle, Durham, England, 5-9 Apr 2003
eConf **C0304052**, WG506 (2003) [hep-ph/0307322] (plenary)
9. *$D^0 - \overline{D}^0$ mixing, CP violation and New Physics*
Conference on Intersections of Particle and Nuclear Physics, New York City, 2003
10. *Flavor SU(3) and mixing in charmed mesons.*
5th Workshop on Continuous Advances in QCD, Minneapolis, 2002
[hep-ph/0209049] (plenary)
11. *Theory of $D^0 - \overline{D}^0$ mixing.*
Flavor Physics and CP Violation, Philadelphia, 2002 [hep-ph/0207212] (plenary)
12. *SU(3) breaking and $D^0 - \overline{D}^0$ mixing.*
Workshop on CP Violation, Ann Arbor, 2001
13. *Phenomenology of $D^0 - \overline{D}^0$ mixing.*
Frontiers in Contemporary Physics II, Nashville, 2001 (plenary)
14. *Phenomenology of $D^0 - \overline{D}^0$ mixing or what do we expect now?*
Workshop on Prospects for CLEO/CESR at $3 < E < 5$ GeV, Ithaca, 2001

15. *Width difference in the $D^0 - \bar{D}^0$ system.*
4th Workshop on Continuous Advances in QCD, Minneapolis, 2000 [hep-ph/0009160]
16. *Physics potential of neutrino factories at Muon Colliders: short baseline.*
Physics Potential and Development of $\mu^+\mu^-$ Colliders, San Francisco, 1999,
[hep-ph/0003026] (plenary)
17. *Final state interactions: from strangeness to beauty.*
The Chicago Conference on Kaon Physics, Chicago, 1999 [hep-ph/9909312] (plenary)
18. *QCD and electroweak studies at neutrino factories.*
23 Johns Hopkins Workshop on Current Problems in Particle Theory, Baltimore, 1999
19. *Determination of V_{ub} from inclusive $b \rightarrow u\bar{c}s$ decays.*
B physics at the Tevatron, FNAL, 1999
20. *Rescattering effects in heavy quark decays.*
DPF-99 meeting of the American Physical Society, Los Angeles, 1999
[hep-ph/9903366] (review)
21. *Enhancing $D^0 - \bar{D}^0$ mixing: from Standard Model to New Physics.*
Workshop on Physics with the 8+ Photons at Jefferson Lab, Pittsburgh, 1998

OTHER CONFERENCE PRESENTATIONS

1. *Lifetimes of Heavy Hadrons*
International Conference on High Energy Physics (ICHEP 2006), Moscow, Russia 2006
2. *$X(3872)$ in effective field theory*
PANIC 2005 Conference, Santa Fe, 2005
3. *Lifetimes of heavy hadrons*
Phenomenology'05 Symposium, Madison, 2005
4. *$D^0 - \bar{D}^0$ mixing from a dispersion relation*
Phenomenology'04 Symposium, Madison, 2004
5. *$SU(3)$ breaking and $D^0 - \bar{D}^0$ mixing.*
Phenomenology'02 Symposium, Madison, 2002
6. *Measuring V_{ub} in B decays to charm.*
Phenomenology'99 Symposium, Madison, 1999
7. *B_c decays in non-relativistic QCD.*
APS Centennial Meeting (Atlanta, 1999).
8. *CP violation in charm decays.*
DPF-99 meeting of the American Physical Society, Los Angeles, 1999
9. *Hybrid charmonium production in NRQCD*
3rd International Conference on Quark Confinement and Hadrone Spectrum, Jefferson
Lab, 1998, [hep-ph/9808347]

10. *Final state interactions and new physics in $B \rightarrow \pi K$ decays.*
Phenomenology'98 Symposium, Madison, 1998
11. *Long distance effects in radiative $B \rightarrow \rho\gamma$ decay.*
BaBar Physics Workshop, Princeton, 1997
12. *Dipenguin-like contributions to $D^0 - \bar{D}^0$ mixing*
Seventh International Conference on Hadron Spectroscopy, BNL, 1997 [hep-ph/9712279]

PARTICIPATION IN OTHER CONFERENCES

1. Top Quark Symposium (MCTP, Univ. of Michigan, 2005) [session chair]
2. New Ideas in Particle Physics and Cosmology (Philadelphia, 1999)
3. Heavy Quarks at Fixed Target (Fermilab, 1998) [poster presented]
4. Chiral Dynamics Workshop (MIT, 1994).

THREE MOST CITED PUBLICATIONS (SLAC-SPIRES)

1. *Final state interactions and New Physics in $B \rightarrow \pi K$ decays*
Adam Falk, Alexander Kagan, Yosef Nir, Alexey A. Petrov (157 citations)
2. *Systematics of soft final state interactions in B decay*
J.F. Donoghue, E. Golowich, Alexey A. Petrov, J. Soares (132 citations)
3. *η' production in B -decays: Standard Model vs. New Physics*
Alexander L. Kagan, Alexey A. Petrov (117 citations)

REFERENCES

- Prof. Sandip Pakvasa (pakvasa@phys.hawaii.edu)
Department of Physics and Astronomy
University of Hawaii
Honolulu, HI 90822
- Prof. Amarjit Soni (soni@bnl.gov)
Theory Group
Bldg. 510A, 20 Pennsylvania Ave.
Brookhaven National Lab.
Upton, NY 11973-5000
- Prof. Eugene Golowich (golowich@physics.umass.edu)
Department of Physics
University of Massachusetts
Amherst, MA 01003
- Prof. Zoltan Ligeti (zligeti@lbl.gov)
Lawrence Berkeley National Lab
1 Cyclotron Road
Berkeley, CA 94720
- Prof. Adam F. Falk (falk@pha.jhu.edu)
Department of Physics and Astronomy
Johns Hopkins University
3400 North Charles St.
Baltimore, MD 21218
- Prof. Yosef Nir (ftnir@wicc.weizmann.ac.il)
Department of Particle Physics
Weizmann Institute of Science
Rehovot 76100, Israel
- Prof. John F. Donoghue (donoghue@physics.umass.edu)
Department of Physics
University of Massachusetts
Amherst, MA 01003