YANG MA

Department of Physics and Astronomy, University of Pittsburgh
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PROFESSIONAL PREPARATION

Ph.D. in Physics expected April 2022
University of Pittsburgh, PA, U.S.A. GPA: 3.816/4.0

M.S. in Physics June 2016
Chongqing University, Chongqing, China

SKILLS

Programming Language: C/C++, Fortran, Python, Shell script

Handy Programs: Mathematica, Matlab, LaTeX, Excel, Powerpoint, Linux (OS)

HEP Packages: Madgraph, Pythia, FeynRules, FeynArts, FeynCalc, FormCalc, `WHIZARD`, ManeParse

POSITION HELD

Arts & Sciences Pre-Doctoral Fellow Sept. 2020 - present
Kenneth P. Dietrich School of Arts & Sciences, University of Pittsburgh

Graduate Research Assistant Jan. 2020 - Aug. 2020
Dept. Physics & Astronomy, University of Pittsburgh

Graduate Teaching Assistant Sept. 2016 - Jan. 2020
Dept. Physics & Astronomy, University of Pittsburgh

AWARDS AND HONORS

Thomas-Lain Scholarship Apr. 2021
Dept. Physics & Astronomy, University of Pittsburgh

FGSA Award for Excellence in Graduate Research Feb. 2021
American Physical Society (APS)

Arts & Sciences Graduate Fellowship Sept. 2020
Kenneth P. Dietrich School of Arts & Sciences, University of Pittsburgh

Pitt Physics and Astronomy China Initiative (PACI) Scholarship Sept. 2016
Dept. Physics & Astronomy, University of Pittsburgh

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Physical Society (APS) member Mar. 2021 - present

Organization of Chinese Physics & Astrophysics (OCPA) member Sept. 2021 - present

American Association for the Advancement of Science (AAAS) member Sept. 2021 - present

PUBLICATIONS

1. T. Han, A. K. Leibovich, Y. Ma and X.-Z. Tan, *Higgs boson decay to charmonia via c-quark fragmentation*, 2202.08273.
2. T. Han, W. Kilian, N. Kreher, Y. Ma, J. Reuter, T. Striegl et al., *Precision Test of the Muon-Higgs Coupling at a High-energy Muon Collider*, *JHEP* **12** (2021) 162 [2108.05362].
3. D. Buarque et al., *Vector Boson Scattering Processes: Status and Prospects*, 2106.01393.
4. T. Han, Y. Ma and K. Xie, *Quark and gluon contents of a lepton at high energies*, *JHEP* **02** (2022) 154 [2103.09844].
5. T. Han, Y. Ma and K. Xie, *High energy leptonic collisions and electroweak parton distribution functions*, *Phys. Rev. D* **103** (2021) L031301 [2007.14300].
6. Z. Sun and Y. Ma, *Inclusive productions of $\Upsilon(1S, 2S, 3S)$ and $\chi_b(1P, 2P, 3P)$ via the Higgs boson decay*, *Phys. Rev. D* **100** (2019) 094019 [1909.08548].
7. Z. Sun, X.-G. Wu, Y. Ma and S. J. Brodsky, *Exclusive production of $J/\psi + \eta_c$ at the B factories Belle and Babar using the principle of maximum conformality*, *Phys. Rev. D* **98** (2018) 094001 [1807.04503].
8. Y. Ma and X.-G. Wu, *Renormalization scheme dependence of high-order perturbative QCD predictions*, *Phys. Rev. D* **97** (2018) 036024 [1707.09886].
9. J.-M. Shen, X.-G. Wu, Y. Ma and S. J. Brodsky, *The Generalized Scheme-Independent Crewther Relation in QCD*, *Phys. Lett. B* **770** (2017) 494 [1611.07249].
10. H.-Y. Bi, X.-G. Wu, Y. Ma, H.-H. Ma, S. J. Brodsky and M. Mojaza, *Degeneracy Relations in QCD and the Equivalence of Two Systematic All-Orders Methods for Setting the Renormalization Scale*, *Phys. Lett. B* **748** (2015) 13 [1505.04958].
11. H.-H. Ma, X.-G. Wu, Y. Ma, S. J. Brodsky and M. Mojaza, *Setting the renormalization scale in perturbative QCD: Comparisons of the principle of maximum conformality with the sequential extended Brodsky-Lepage-Mackenzie approach*, *Phys. Rev. D* **91** (2015) 094028 [1504.01260].
12. Y. Ma, X.-G. Wu, H.-H. Ma and H.-Y. Han, *General Properties on Applying the Principle of Minimum Sensitivity to High-order Perturbative QCD Predictions*, *Phys. Rev. D* **91** (2015) 034006 [1412.8514].
13. H.-B. Fu, X.-G. Wu and Y. Ma, *$B \to K^*$ Transition Form Factors and the Semi-leptonic Decay $B \to K^* \mu^+ \mu^-$*, *J. Phys. G* **43** (2016) 015002 [1411.6423].
14. H.-B. Fu, X.-G. Wu, H.-Y. Han, Y. Ma and H.-Y. Bi, *The ρ-meson longitudinal leading-twist distribution amplitude*, *Phys. Lett. B* **738** (2014) 228 [1409.3053].
15. G. Chen, X.-G. Wu, Z. Sun, Y. Ma and H.-B. Fu, *Photoproduction of doubly heavy baryon at the ILC*, *JHEP* **12** (2014) 018 [1408.4615].
16. H.-B. Fu, X.-G. Wu, H.-Y. Han and Y. Ma, *$B \to \rho$ transition form factors and the ρ-meson transverse leading-twist distribution amplitude*, *J. Phys. G* **42** (2015) 055002 [1406.3892].
17. X.-G. Wu, Y. Ma, S.-Q. Wang, H.-B. Fu, H.-H. Ma, S. J. Brodsky et al., *Renormalization Group Invariance and Optimal QCD Renormalization Scale-Setting*, *Rept. Prog. Phys.* **78** (2015) 126201 [1405.3196].
18. S.-Q. Wang, X.-G. Wu, J.-M. Shen, H.-Y. Han and Y. Ma, *QCD improved electroweak parameter ρ*, *Phys. Rev. D* **89** (2014) 116001 [1402.0975].

19. Z. Sun, X.-G. Wu, G. Chen, Y. Ma, H.-H. Ma and H.-Y. Bi, *Bottomonium production associated with a photon at a high luminosity e^+e^- collider with the one-loop QCD correction*, Phys. Rev. D **89** (2014) 074035 [1401.2735].

20. H.-B. Fu, X.-G. Wu, H.-Y. Han, Y. Ma and T. Zhong, *$|V_{cb}|$ from the semileptonic decay $B \to D\ell\bar{\nu}_\ell$ and the properties of the D meson distribution amplitude*, Nucl. Phys. B **884** (2014) 172 [1309.5723].

SEMINAR AND COLLOQUIUM

1. *Multi-boson production and the muon Yukawa coupling* — Oct. 2021
   (Remote) HEP Journal Club, University of Utah
2. *Multi-boson production and the muon Yukawa coupling* — Sept. 2021
   PITT PACC Group Seminar, University of Pittsburgh
3. *Parton contents of a lepton at high energies* — May 2021
   (Remote) Particle Theory Seminar, Carleton University
4. *The partonic picture at high-energy lepton colliders* — Apr. 2021
   (Remote) SLAC EPP Theory Seminar, SLAC
5. *The partonic picture at high-energy lepton colliders* — Apr. 2021
   (Remote) Particle Theory Seminar, Shandong University
6. *Parton contents of a lepton at high energies* — Apr. 2021
   (Remote) HEP Seminar, Oklahoma State University
7. *QCD jet production at high energy lepton colliders* — Mar. 2021
   (Remote) PITT PACC Group Seminar, University of Pittsburgh
8. *High energy lepton collisions and electroweak PDFs* — Oct. 2020
   (Remote) Particle Theory Seminar, Carleton University
9. *High energy lepton collisions and electroweak PDFs* — Sept. 2020
   (Remote) PITT PACC Group Seminar, University of Pittsburgh
10. *How much do we need polarized PDFs?* — Oct. 2019
    PITT PACC Group Seminar, University of Pittsburgh
11. *Renormalization scheme uncertainties in high order perturbative QCD results* — Mar. 2019
    PITT PACC Group Seminar, University of Pittsburgh

CONFERENCE TALKS

1. *Multi-boson production and the muon Yukawa coupling* — Dec. 2021
   PIKIMO 11, University of Pittsburgh
2. *Electroweak parton distributions and fragmentations for high-energy lepton colliders* — Oct. 2021
   (Remote) Snowmass EF04 Topical Group Community Meeting
3. *Higgs boson decay to J/ψ via c-quark fragmentation* — Oct. 2021
   (Remote) Parallel talk at Higgs 2021 Conference, Stony Brook University
4. *The partonic picture at high-energy lepton colliders* — Aug. 2021
   (Remote) Parallel talk at SUSY 2021, Shanghai
5. *QCD jet production at a high energy muon collider* — July 2021
   (Remote) Parallel talk at EPS-HEP 2021, DESY

6. *Quark and gluon contents of a lepton at high energies* July 2021
(Remote) Parallel talk at the DPF meeting, Florida State University

7. *Quark and gluon contents of a lepton at high energies* May 2021
(Remote) Parallel talk at Pheno 2021, University of Pittsburgh

8. *The partonic picture at high-energy lepton colliders* May 2021
(Remote) Parallel talk at PPC 2021, University of Oklahoma

9. *Electroweak parton distribution functions at a high-energy muon collider* Apr. 2021
(Remote) Parallel talk at APS April Meeting, Muon Collider Symposium IV

10. *QCD jet production at a high energy muon collider* Mar. 2021
(Remote) Talk at Muon Collider Physics and Simulation Meeting, CERN

11. *The electroweak parton distribution functions - Necessity and application* June 2020
(Remote) Student talk at Theoretical Advanced Study Institute (TASI 2020)

12. *The electroweak parton distribution functions* May 2020
(Remote) Parallel talk at Pheno 2020, University of Pittsburgh

13. *QCD Scale-setting problem in Future Chinese Collider physics* Sept. 2015
Parallel talk at CEPC-SppC Study Group Meeting, IHEP, Beijing

CONFERENCES AND WORKSHOPS ATTENDED

1. PIKIMO 11 Dec. 2021
University of Pittsburgh (hybrid)

2. Higgs 2021 Oct. 2021
Stony Brook University & Brookhaven National Laboratory (remote)

3. The XXVIII International Conference on Supersymmetry and Unification of
Fundamental Interactions (SUSY 2021), Shanghai (remote) Aug. 2021

4. European Physical Society Conference on High Energy Physics 2021 (EPS-HEP 2021)
DESY (remote) July 2021

5. 2021 Meeting of the Division of Particles and Fields of the APS (DPF21)
Florida State University (remote) July 2021

6. Phenomenology Symposium 2021 (Pheno 2021)
University of Pittsburgh (remote) May 2021

7. XIV International Workshop on Interconnections between Particle Physics
and Cosmology (PPC 2021), University of Oklahoma (remote) May 2021

8. APS April Meeting (remote) Apr. 2021

9. Muon Collider Physics and Simulation Meeting (remote) Mar. 2021

10. PITT PACC Workshop: Muon collider physics
University of Pittsburgh (remote) Nov. 2020

11. Phenomenology Symposium 2020 (Pheno 2020)
University of Pittsburgh (remote) May 2020

12. Phenomenology Symposium 2020 (Pheno 2019)
University of Pittsburgh May 2019

13. PITT PACC Workshop: BSM circa 2020
University of Pittsburgh Mar. 2019

14. Phenomenology Symposium 2020 (Pheno 2018)
University of Pittsburgh May 2018

15. Phenomenology Symposium 2020 (Pheno 2017)
University of Pittsburgh May 2017

16. The CEPC-SppC Study Group Meeting
Institute of High Energy Physics (IHEP), Beijing Sept. 2015

SUMMER SCHOOLS ATTENDED

1. **SSI 2020**, SLAC Aug. 2021
49th SLAC SUMMER INSTITUTE: The Higgs State Fair

2. **HCPSS 2020**, Fermilab Aug. 2020
15th annual Fermilab-CERN Hadron Collider Physics Summer School

3. **TASI 2020**, University of Colorado Boulder June 2020
The Obscure Universe: Neutrinos and Other Dark Matters

4. **CTEQ 2019**, University of Pittsburgh July 2019
CTEQ School on QCD and Electroweak Phenomenology

5. **CTEQ 2017**, University of Pittsburgh July 2017
CTEQ School on QCD and Electroweak Phenomenology

REFEREE SERVICE

- European Physical Journal C (EPJC) $\times 1$

TEACHING EXPERIENCE

Graduate Teaching Assistant at the University of Pittsburgh

1. PHYS 0219 - *Basic Laboratory Physics for Science and Engineering*
Fall 2016, Spring 2017, and Fall 2018

2. PHYS 0212 - *Introduction to Laboratory Physics*
Fall 2017, Spring 2018, and Summer 2018

3. PHYS 0110 - *Introduction to Physics 1*, Summer 2018
Covers Mechanics, Heat and Thermodynamics, and Waves

4. PHYS 0111 - *Introduction to Physics 2*, Summer 2017
Covers Thermodynamics, Electromagnetism, Optics, Special Relativity, and Quantum Physics

5. PHYS 0175 - *Basic Physics, Science and Engineering 2*, Spring 2019 and Summer 2021
Covers Electromagnetism, Elementary Quantum Mechanics, and Atomic Structure

Graduate Teaching Assistant at Chongqing University

1. College Physics I - *Classical Mechanics and Electromagnetism*, Spring 2014

2. College Physics II - *Thermodynamics, Optics and Special Relativity*, Fall 2013

MENTORING EXPERIENCE

1. Dept. Physics & Astronomy Graduate Student Mentor — Aug. 2021 - present
   Mentoring three first year graduate student
2. Assist to guide one visiting graduate student — Dec. 2019 - Dec. 2020
   (publication in prep.)
3. Assist to guide one visiting undergraduate student — June 2019 - Aug. 2019