YANG MA

Department of Physics and Astronomy, University of Pittsburgh
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PROFESSIONAL PREPARATION

Ph.D. in Physics August 2022
University of Pittsburgh, PA, U.S.A. Advisor: Tao Han

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

Postdoctoral Researcher (Expected) September 2022 - September 2024
INFN Sezione di Bologna, Italy

Graduate Teaching Fellow May 2022 - July 2022
Dept. Physics & Astronomy, University of Pittsburgh

Graduate Research Fellow January 2022 - April 2022
Dept. Physics & Astronomy, University of Pittsburgh

Arts & Sciences Pre-Doctoral Fellow September 2020 - December 2021
Kenneth P. Dietrich School of Arts & Sciences, University of Pittsburgh

Graduate Research Assistant January 2020 - August 2020
Dept. Physics & Astronomy, University of Pittsburgh

Graduate Teaching Assistant September 2016 - January 2020
Dept. Physics & Astronomy, University of Pittsburgh

AWARDS AND HONORS

DPF Student Travel Award April 2022
APS Division of Particles and Fields (DPF)

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

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

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

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

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Physical Society (APS) member	March 2021 - present
Organization of Chinese Physics & Astrophysics (OCPA) member	September 2021 - present
American Association for the Advancement of Science (AAAS) member	September 2021 - present

PUBLICATIONS IN REFEREED JOURNALS

1. T. Han, A. K. Leibovich, Y. Ma and X.-Z. Tan, *Higgs boson decay to charmonia via c-quark fragmentation*, *JHEP* **08** (2022) 073 [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*, *Rev. Phys.* **8** (2022) 100071 [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].

OTHER PUBLICATIONS

1. T. Han, Y. Ma and K. Xie, *Electroweak fragmentation at high energies: A Snowmass White Paper*, in *2022 Snowmass Summer Study*, 3, 2022, 2203.11129.

2. J. M. Campbell et al., *Event Generators for High-Energy Physics Experiments*, in *2022 Snowmass Summer Study*, 3, 2022, 2203.11110.

3. I. Adachi et al., *The International Linear Collider: Report to Snowmass 2021*, in *2022 Snowmass Summer Study*, 3, 2022, 2203.07622.

4. J. De Blas et al., *The physics case of a 3 TeV muon collider stage*, in *2022 Snowmass Summer Study*, 3, 2022, 2203.07261.

5. C. Aimè et al., *Muon Collider Physics Summary*, in *2022 Snowmass Summer Study*, 3, 2022, 2203.07256.

SEMINAR AND COLLOQUIUM

1. *The partonic picture and the SM expectation of high-energy lepton colliders* — August 2022
   HEP Seminar, University of Minnesota

2. *Higgs decay to J/ψ via c-quark fragmentation* — May 2022
   (Remote) Nuclear Physics Seminar, UCLA

3. *Higgs decay to charmonia and the charm quark Yukawa* — March 2022
   PITT PACC Group Seminar, University of Pittsburgh

4. *Multi-boson production and the muon Yukawa coupling* — October 2021
   (Remote) HEP Journal Club, University of Utah

5. *Multi-boson production and the muon Yukawa coupling* — September 2021
   PITT PACC Group Seminar, University of Pittsburgh

6. *Parton contents of a lepton at high energies* — May 2021
   (Remote) Particle Theory Seminar, Carleton University

7. *The partonic picture at high-energy lepton colliders* — April 2021
   (Remote) SLAC EPP Theory Seminar, SLAC

8. *The partonic picture at high-energy lepton colliders* — April 2021
   (Remote) Particle Theory Seminar, Shandong University

9. *Parton contents of a lepton at high energies* — April 2021
   (Remote) HEP Seminar, Oklahoma State University

10. *QCD jet production at high energy lepton colliders* March 2021
(Remote) PITT PACC Group Seminar, University of Pittsburgh

11. *High energy lepton collisions and electroweak PDFs* October 2020
(Remote) Particle Theory Seminar, Carleton University

12. *High energy lepton collisions and electroweak PDFs* September 2020
(Remote) PITT PACC Group Seminar, University of Pittsburgh

13. *How much do we need polarized PDFs?* October 2019
PITT PACC Group Seminar, University of Pittsburgh

14. *Renormalization scheme uncertainties in high order perturbative QCD results* March 2019
PITT PACC Group Seminar, University of Pittsburgh

CONFERENCE TALKS

1. *Higgs decay to J/ψ via c-quark fragmentation* July 2022
(Remote) Parallel talk at ICHEP 2022, Bologna

2. *Higgs decay to J/ψ via c-quark fragmentation* May 2022
Parallel talk at Pheno 2022, University of Pittsburgh

3. *Multi-boson production and the muon Yukawa coupling* April 2022
Contributed talk at APS April Meeting 2022, New York

4. *Multi-boson production and the muon Yukawa coupling* December 2021
PIKIMO 11, University of Pittsburgh

5. *Electroweak parton distributions and fragmentations for high-energy lepton colliders* October 2021
(Remote) Snowmass EF04 Topical Group Community Meeting

6. *Higgs boson decay to J/ψ via c-quark fragmentation* October 2021
(Remote) Parallel talk at Higgs 2021 Conference, Stony Brook University

7. *The partonic picture at high-energy lepton colliders* August 2021
(Remote) Parallel talk at SUSY 2021, Shanghai

8. *QCD jet production at a high energy muon collider* July 2021
(Remote) Parallel talk at EPS-HEP 2021, DESY

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

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

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

12. *Electroweak parton distribution functions at a high-energy muon collider* April 2021
(Remote) Contributed talk at APS April Meeting 2021

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

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

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

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

CONFERENCES AND WORKSHOPS ATTENDED

1. Snowmass Community Summer Study Workshop (Snowmass 2022), Seattle July 2022
2. XLI International Conference on High Energy Physics (ICHEP 2022), Bologna July 2022
3. LoopFest XX, University of Pittsburgh May 2022
4. Phenomenology Symposium 2022 (Pheno 2022) May 2022
University of Pittsburgh
5. APS April Meeting 2022, New York April 2022
6. PIKIMO 11, University of Pittsburgh (hybrid) December 2021
7. Higgs 2021 October 2021
Stony Brook University & Brookhaven National Laboratory (remote)
8. The XXVIII International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY 2021), Shanghai (remote) August 2021
9. European Physical Society Conference on High Energy Physics 2021 (EPS-HEP 2021) DESY (remote) July 2021
10. 2021 Meeting of the Division of Particles and Fields of the APS (DPF21) July 2021
Florida State University (remote)
11. Phenomenology Symposium 2021 (Pheno 2021) May 2021
University of Pittsburgh (remote)
12. XIV International Workshop on Interconnections between Particle Physics and Cosmology (PPC 2021), University of Oklahoma (remote) May 2021
13. APS April Meeting 2021 (remote) April 2021
14. Muon Collider Physics and Simulation Meeting (remote) March 2021
15. PITT PACC Workshop: Muon collider physics November 2020
University of Pittsburgh (remote)
16. Phenomenology Symposium 2020 (Pheno 2020) May 2020
University of Pittsburgh (remote)
17. Phenomenology Symposium 2020 (Pheno 2019) May 2019
University of Pittsburgh
18. PITT PACC Workshop: BSM circa 2020 March 2019
University of Pittsburgh
19. Phenomenology Symposium 2020 (Pheno 2018) May 2018
University of Pittsburgh
20. Phenomenology Symposium 2020 (Pheno 2017) May 2017
University of Pittsburgh
21. The CEPC-SppC Study Group Meeting September 2015
Institute of High Energy Physics (IHEP), Beijing

SUMMER SCHOOLS ATTENDED

1. **CTEQ 2022**, University of Pittsburgh — July 2022
   CTEQ School on QCD and Electroweak Phenomenology
2. **SSI 2021**, SLAC — August 2021
   49th SLAC SUMMER INSTITUTE: The Higgs State Fair
3. **HCPSS 2020**, Fermilab — August 2020
   15th annual Fermilab-CERN Hadron Collider Physics Summer School
4. **TASI 2020**, University of Colorado Boulder — June 2020
   The Obscure Universe: Neutrinos and Other Dark Matters
5. **CTEQ 2019**, University of Pittsburgh — July 2019
   CTEQ School on QCD and Electroweak Phenomenology
6. **CTEQ 2017**, University of Pittsburgh — July 2017
   CTEQ School on QCD and Electroweak Phenomenology

REFEREE SERVICE

- The European Physical Journal C (EPJ C) $\times 1$
- Journal of Physics Communications (J. Phys. Commun.) $\times 1$

TEACHING EXPERIENCE

Graduate Teaching Fellow (instructor) at the University of Pittsburgh

- PHYS 0174 - *Basic Physics, Science and Engineering 1*, Summer 2022
  Covers Mechanics and Wave

Graduate Teaching Assistant at the University of Pittsburgh

- PHYS 0219 - *Basic Laboratory Physics for Science and Engineering*
  Fall 2016, Spring 2017, and Fall 2018
- PHYS 0212 - *Introduction to Laboratory Physics*
  Fall 2017, Spring 2018, and Summer 2018
- PHYS 0110 - *Introduction to Physics 1*, Summer 2018
  Covers Mechanics, Heat and Thermodynamics, and Waves
- PHYS 0111 - *Introduction to Physics 2*, Summer 2017
  Covers Thermodynamics, Electromagnetism, Optics, Special Relativity, and Quantum Physics
- 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

- College Physics I - *Classical Mechanics and Electromagnetism*, Spring 2014
- College Physics II - *Thermodynamics, Optics and Special Relativity*, Fall 2013

MENTORING EXPERIENCE

- Dept. Physics & Astronomy Graduate Student Mentor — August 2021 - present
  Mentoring three first year graduate student
- Assist to guide one visiting graduate student (*Xiaoze Tan*) — December 2019 - December 2020
  (*JHEP* **08** (2022) 073 [2202.08273])
- Assist to guide one visiting undergraduate student — June 2019 - August 2019