

BRANDON MANLEY

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EDUCATION

The Ohio State University

Aug. 2021 – Present

Ph.D in Physics

Columbus, Ohio, USA

- Advisor: Prof. Yuri Kovchegov

M.S. in Physics

Aug. 2021 – Aug. 2023

B.S. in Physics, Magna Cum Laude

Aug. 2017 – May 2021

- Honors Thesis Advisor: Prof. Stuart Raby
- Honors Thesis: Symmetries in Physical Theories

RESEARCH INTERESTS AND EXPERTISE

- Quantum chromodynamics at high energies: small- x evolution and gluon saturation
- Spin physics: nucleon spin puzzle, orbital angular momentum, helicity parton distribution functions
- Phenomenology for the future Electron Ion Collider

PUBLICATIONS

1. *Orbital Angular Momentum at Small x Revisited*

Brandon Manley

Contribution to DIS 2023 proceedings

[arXiv:2307.09544](https://arxiv.org/abs/2307.09544) (2023)

2. *Sensitivity to millicharged particles and future proton-proton collisions at the LHC with the milliQan detector*

A. Ball *et al.* (incl. **Brandon Manley**)

[Phys. Rev. D 104 032002](https://arxiv.org/abs/2103.03202) (2021)

3. *Search for millicharged particles in proton-proton collisions at $\sqrt{s} = 13$ TeV*

A. Ball *et al et al.* (incl. **Brandon Manley**)

[Phys. Rev. D 102 032002](https://arxiv.org/abs/2003.03202) (2020)

In preparation:

1. *Orbital Angular Momentum at Small x Revisited*

Yuri V. Kovchegov, **Brandon Manley**

2. *Analytic Solution to the Orbital Angular Momentum Evolution Equations in the Large- N_c Limit*

Brandon Manley

PRESENTATIONS

- **Sep. 2023: SPIN 2023**, Durham, NC, USA
Contributed Talk: Orbital Angular Momentum at Small x Revisited
- **Jun. 2023: SURGE Collaboration Meeting**, Brookhaven National Lab, NY, USA
Contributed Talk: Updates on OAM at Small x
- **Mar. 2023: DIS 2023**, Lansing, MI, USA
Contributed Talk: Orbital Angular Momentum at Small x Revisited
- **Mar. 2022: HUGS Summer School**, Jefferson Lab, VA, USA
Contributed Talk: Orbital Angular Momentum at Small x

- **Apr. 2020: Spring Undergraduate Research Festival, OSU, OH, USA**
Poster: [Machine Learning Approach to Solve the Chaotic N-Body Problem](#)
- **Sep. 2020: Boston University Symposium, Boston, MA, USA**
Invited Talk: Search for Millicharged Particles with the MilliQan Detector

RESEARCH EXPERIENCES

The Ohio State University

Graduate Research Assistant

Advisor: Prof. Yuri Kovchegov (Department of Physics, OSU)

- Small x contribution of the OAM distributions to the nucleon spin rule
- Small x evolution of polarized dipole amplitudes and their moments
- Numerical analysis of the helicity and orbital PDFs at small x
- Singular behavior of twist-3 GPDs near $x = 0$

Aug. 2021 – Present

Columbus, OH, USA

The Ohio State University

Undergraduate Research Assistant

Advisor: Prof. Chris Hill (Department of Physics, OSU)

- Data analysis for the milliQan experiment in the search for millicharged particles
- Detector design and benchmark testing for the milliQan experiment
- GUI for the next generation pixel detector for the CMS experiment

Aug. 2017 – May 2021

Columbus, OH, USA

The Ohio State University

Undergraduate Research Assistant

Advisor: Prof. Stuart Raby (Department of Physics, OSU)

- General symmetry structure of gauge theories and their application to isospin symmetry breaking

Aug. 2020 – May 2021

Columbus, OH, USA

Kent State University

Research Assistant

Advisor: Prof. Oleg Lavrentovich (Department of Physics, KSU)

- Structures and anisotropies of lyotropic chromonic liquid crystals

May 2016 – Aug. 2016

Kent, OH, USA

TEACHING EXPERIENCE AND SERVICE

Society of Physics Students

Volunteer for Adopt-a-Physicist program

Oct. 2023 – Present

Columbus, OH, USA

Believe in Ohio

Volunteer Judge

Apr. 2023 – Present

Columbus, OH, USA

Department of Physics, OSU

Graduate Teaching Assistant

- Introductory Physics – Electromagnetism, Optics, Modern Physics (Head TA)
- Intermediate Classical Mechanics
- Quantum Field Theory

Aug. 2021 – Present

Columbus, OH, USA

Department of Mathematics, OSU

Undergraduate Teaching Assistant

- Precalculus
- Trigonometry

Aug. 2019 – May 2021

Columbus, OH, USA

Student Athlete Support Services Office, OSU

Tutor

- Calculus I, II, and III
- Introductory Physics – Electromagnetism, Optics, Modern Physics
- Intermediate Classical Mechanics

Aug. 2018 – May 2019

Columbus, OH, USA

HONORS AND AWARDS

- **2020: Summer Research Scholarship**, OSU, Columbus, OH, USA
- **2019: Summer Research Scholarship**, OSU, Columbus, OH, USA
- **2017: Maximus Merit Scholarship**, OSU, Columbus, OH, USA
- **2016: Believe in Ohio Scholarship**, Columbus, OH, USA

TECHNICAL SKILLS

Programming Languages: Python, C++, WolframScript, Julia

Technologies/Frameworks: Mathematica, ROOT, GitHub, tensorflow

REFERENCES

Yuri Kovchegov
Professor of Physics
The Ohio State University
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Chris Hill
Professor of Physics
The Ohio State University
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Parisa Roustazadeh
Lecturer and Course Manager
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