SARAH SKINNER

Graduate Student

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Objective

To continue computing scattering information using lattice QCD.

Education

Carnegie Mellon University (CMU) 3.9/4.3

Ph.D. in Physics *Aug 2020 - Aug 2024*

Missouri University of Science and Technology (Missouri S&T) 3.9/4.0

B.S. Physics, *Minors in Computer Science, Mathematics* *June 2016 - Dec 2019*

Publications

[1] J. Bulava, A. D. Hanlon, B. Hörz, C. Morningstar, A. Nicholson, F. Romero-López, **S. Skinner**, P. Vranas, and A. Walker-Loud, *Elastic nucleon-pion scattering at m = 200 mev from lattice qcd*, *Nuclear Physics B* **987** (2023) 116105.

[2] T. Vojta, S. Halladay, **S. Skinner**, S. Janušonis, T. Guggenberger, and R. Metzler, *Reflected fractional brownian motion in one and higher dimensions*, *Phys. Rev. E* **102** (Sep, 2020) 032108.

[3] T. Vojta, **S. Skinner**, and R. Metzler, *Probability density of the fractional langevin equation with reflecting walls*, *Phys. Rev. E* **100** (Oct, 2019) 042142.

[4] A. Nicola, D. Alonso, J. Sánchez, A. Slosar, H. Awan, A. Broussard, J. Dunkley, E. Gawiser, Z. Gomes, R. Mandelbaum, H. Miyatake, J. A. Newman, I. Sevilla-Noarbe, **S. Skinner**, and E. L. Wagoner, *Tomographic galaxy clustering with the subaru hyper suprime-cam first year public data release*, *Journal of Cosmology and Astroparticle Physics* **2020** (mar, 2020) 044.

Research Projects

Calculating Resonance Information from Lattice QCD (CMU) Pittsburgh, PA

Advisor: *Dr. Colin Morningstar*. Investigation into how resonances impact the scattering of hadrons. *Jan 2021 - Present*

Analysis on GlueX Data (CMU) Pittsburgh, PA

Advisor: *Dr. Curtis Meyer*. Isolated scattering channels in Gluex detector data. *Aug 2020 - Dec 2020*

Scalability Improvement of Plasma Simulation (NASA Glenn) Cleveland, OH

Advisor: *Dr. Maria Choi*. Improved methods within a hybrid fluid/Monte Carlo plasma simulation in confined geometries to predict physics in an ion thruster. *Jan 2020 - May 2020*

Anomalous Diffusion in Confined Geometries (Missouri S&T) Rolla, MO

Advisor: *Dr. Thomas Vojta*. Modeled anomalous diffusion determined by the fractional Langevin equation using Monte Carlo methods. *Jan 2018 - Dec 2019*

Errors in Dark Matter Halos Fit Model (Brookhaven National Laboratories) Upton, NY

Advisor: *Dr. Anže Slosar*. Inserted error into dark matter fit model to assess its significance. *Jun 2019 - Aug 2019*

Binary Black Hole Model (Louisiana State University) Baton Rouge, LA

Advisor: *Dr. Peter Diener*. Added rotation parameter for smaller black hole in binary system with a high mass difference. *May 2018 - Jul 2018*

Computer Skills

C++	Python	LaTeX	Fortran	Mathematica
MPI	OpenMP	Linux	Windows	Microsoft Office

Conferences

Lattice Conference 2023 *Fermilab, IL, August 2023*

American Physical Society April Meeting *Minneapolis, MI, April 2023*

American Physical Society Topical Group on Hadronic Physics Meeting *Minneapolis, MI, April 2023*

American Physical Society March Meeting *Boston, MA, Mar 2019*

Conference for Undergraduate Women in Physics *Corpus Christi, TX, Jan 2019*

Workshops

National Nuclear Physics Summer School — *Riverside, CA, July 2023*
International HPC Summer School on Challenges in Computational Sciences — *Athens, Greece, June 2022*
Hampton University Graduate Studies (HUGS) Program (Jefferson Lab) — *Newport News, VA, June 2022*

Presentations

Lattice Conference 2023 — Fermilab, IL
Talk: Lattice QCD studies of the Δ and $\Lambda(1405)$ baryon resonances and the $K_0^*(700)$ and $a_0(980)$ meson resonances — *August 2, 2023*

American Physical Society March Meeting — Boston, MA
Poster: Fractional Langevin equation with reflecting barrier — *March 6, 2019*

Invited Talks

Brookhaven National Laboratories — Upton, NY
Seminar: The role of exotic operators in determining the finite-volume spectrum from Lattice QCD and its consequences (Michael Creutz said I did a "good job.") — *August 18, 2023*

Awards and Honors

Mellon College of Science Travel Grant — *CMU, August 2023*
Best Theory Poster — *HUGS, June 2022*

Clubs and Affiliations

Society of Physics Students — Missouri S&T
President — *Aug 2017-May 2018*

Licenses and Certifications

Heartsaver CPR AED and First Aid (American Heart Association) — *CMU, January 2023*

Volunteer Services

Cat Cuddling (Human Animal Rescue of Pittsburgh, East End) — *Pittsburgh, PA, Aug 2021-Present*
St. Patrick Middle School Science Fair Judge — *Rolla, MO, May 2019*
Science Olympiad Proctor — *Missouri S&T, Sept 2018*
Science Learning Center Volunteer — *BNL, July 2018*

References

Dr. Colin Morningstar — *cmorning@andrew.cmu.edu*
Dr. John Bulava — *john.bulava@ruhr-uni-bochum.de*
Dr. André Walker-Loud — *walkloud@lbl.gov*