

Nolan Miller

PHD CANDIDATE

Department of Physics & Astronomy, University of North Carolina at Chapel Hill

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Education

University of North Carolina

PHD IN PHYSICS

- Thesis: *Determining hyperon masses and axial charges from lattice QCD*
- Advisor: Amy Nicholson

Chapel Hill, North Carolina

August 2015 -

University of South Carolina

BS IN PHYSICS AND MATHEMATICS

- *Summa cum laude*
- With distinction in Mathematics

Columbia, South Carolina

August 2011 - May 2015

Honors & Awards

Office of Science Graduate Student Research Award

DEPARTMENT OF ENERGY, OFFICE OF SCIENCE FELLOWSHIP.

- Granted for proposal *Measuring hyperon observables using lattice quantum chromodynamics*

University of North Carolina

January 2021 - December 2021

President's Honor Role

AWARDED TO THOSE HOLDING A 4.0 FOR THAT SEMESTER.

University of South Carolina

Fall 2012 - Spring 2015

Nina & Frank Avignone Fellow

AWARDED TO A SINGLE OUTSTANDING SENIOR PHYSICS MAJOR.

University of South Carolina

2015

Rising Senior Award in Physics

AWARDED TO A SINGLE RISING SENIOR PHYSICS MAJOR.

University of South Carolina

2014

Edwin R and Elizabeth F Jones Endowed Scholarship

AWARDED TO A SINGLE RISING JUNIOR OR SENIOR OF THE UNIVERSITY OF SOUTH CAROLINA MAJORING IN CHEMISTRY, PHYSICS, OR MATH WHO GRADUATED FROM A SOUTH CAROLINA HIGH SCHOOL.

University of South Carolina

2013

Talks

$|V_{us}|$ from the lattice

INVITED

- In which I outline various approaches to calculating $|V_{us}|$ using lattice QCD

Los Alamos National Lab - virtual

November 2021

The nucleon mass and sigma term from lattice QCD

10TH INTERNATIONAL WORKSHOP ON CHIRAL DYNAMICS

- In which I present preliminary work on calculating the nucleon mass and nucleon-pion sigma term, the latter of which has implications for direct dark matter searches

IHEP, CAS - virtual

November 2021

Determining properties of hyperons

38TH INTERNATIONAL SYMPOSIUM ON LATTICE FIELD THEORY

- In which I present a preliminary work on calculating the hyperon masses and axial charges, as well as their relevance to top-row unitarity

MIT - virtual

July 2021

V_{us} from hyperon semileptonic decays [poster]

DIRECTOR'S REVIEW OF THE NUCLEAR SCIENCE DIVISION

- In which I review methods of determining $|V_{us}|$ from leptonic kaon decays, semileptonic kaon decays, and (emphatically) semileptonic hyperon decays

Berkeley Lab - virtual

June 2021

Lattice calculation of F_K/F_π from a mixed domain-wall on HISQ action

2020 FALL MEETING OF THE APS DIVISION OF NUCLEAR PHYSICS

- In which I present a calculation of F_K/F_π , which provides an alternate strategy for calculating $|V_{us}|$

New Orleans, Louisiana - virtual

October 2020

Publications

Scale setting the Möbius domain wall fermion on gradient-flowed HISQ action using the omega baryon mass and the gradient-flow scales t_0 and w_0

DOI: 10.1103/PHYSREVD.103.054511; ARXIV:2011.12166

Physical Review D

March 2021

F_K/F_π from Möbius Domain-Wall fermions solved on gradient-flowed HISQ ensembles

DOI: 10.1103/PHYSREVD.102.034507; ARXIV:2005.04795

Physical Review D

August 2020