Son Nguyen

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EDUCATION

Duke University **Durham, North Carolina**
Doctor of Philosophy in Physics 2018 - 2023

- Advisor: Roxanne Springer
- Thesis: Effective Field Theory Studies of Few-nucleon Systems: Fundamental Symmetry Violation, Electromagnetic Interactions, and Direct Detection of Dark Matter
- Certificate in College Teaching

Duke University **Durham, North Carolina**
Master of Arts in Physics 2018 - 2020

Nagoya University **Nagoya, Japan**
Bachelor of Science in Physics 2014 - 2018

- Advisor: Masayasu Harada
- Thesis: Coupled-channel Study of Pentaquarks

PROFESSIONAL APPOINTMENTS

Washington and Lee University **Lexington, Virginia**
Visiting Assistant Professor of Physics 2023 - Present

KEK High Energy Accelerator Organization **Tsukuba, Japan**
Research Intern June 2017

- Host: Shohei Nishida
- Project: Belle II aerogel ring-imaging Cherenkov detector

HONORS & AWARDS

GFB Student Travel Award, APS Few-body Topical Group	2020, 2022
Conference Travel Award, The Duke Graduate School	2022
DNP Travel Award, APS Division of Nuclear Physics	2022
Teaching on Purpose Fellowship, Kenan Institute for Ethics, Duke University	2022
Bass Instructional Fellowship: Instructor of Record, Duke Graduate School	2021
Outstanding Teaching Assistant Award, American Association of Physics Teachers	2020
Richardson Summer Fellowship, Department of Physics, Duke University	2019
Global 30 Undergraduate Scholarship, Nagoya University	2014 - 2018
Monbukagakusho Honors Scholarship, Japan Student Services Organization	2014 - 2015

PAPERS & PREPRINTS

1. "World-line Monte Carlo for Few-Body Nuclear Physics," with Shailesh Chandrasekharan and Thomas Richardson. In preparation.
2. "Low-energy Effective Field Theory of Deuteron," with Ha Nguyen and Roxanne Springer. In preparation.

3. Thomas R. Richardson, Xincheng Lin, and **Son T. Nguyen**, "Large-N_c analysis of elastic dark matter-light nucleus scattering in pionless effective field theory", Phys. Rev. C **106**, 044003 (2022)

4. **Son T. Nguyen**, Matthias R. Schindler, Roxanne P. Springer, and Jared Vanasse, "Large-N_c and renormalization group constraints on parity-violating low-energy coefficients for three-derivative operators in pionless effective field theory," Phys. Rev. C **103**, 054004 (2021).

PRESENTATIONS

Conferences & Workshops

1. Son Nguyen, "Low energy effective field theory of Deuteron," The Fall Meeting of the APS Division of Nuclear Physics, LA, October 30, 2022.

2. Son Nguyen, "Low energy effective field theory of Deuteron," APS April Meeting 2022, NY, April 9, 2022.

3. Son Nguyen, "Large-N_c constraints on P-D wave parity-violating operators," INT Workshop 19R-76: Hadronic Parity Nonconservation II, January 24, 2022.

4. Son Nguyen, Matthias Schindler, Roxanne Springer, and Jared Vannase, "Large-N_c constraints on parity-violating low-energy constants for three-derivative operators in pionless effective field theory," The Annual Meeting of the APS Southeastern Section, Virtual, November 6, 2020.

5. Son Nguyen, "Parity violation in two-nucleon systems from pionless effective field theory," The Fall Meeting of the APS Division of Nuclear Physics, Virtual, October 30, 2020.

6. Son Nguyen and Roxanne Springer, "Large-N_c constraints on parity-violating low-energy constants in three-derivative pionless effective field theory," APS April Meeting 2020, Virtual, April 18, 2020.

7. Son Nguyen and Roxanne Springer, "Large-N_c relationships among parity-violating low-energy constants in pionless effective field theory," National Nuclear Physics Summer School, Knoxville, TN, August 7, 2019. *(poster presentation).*

Seminars

1. Applications of effective field theory in nuclear physics, TUNL Informal Lunch Talks, June 13, 2023.

2. Nuclear and particle physics, Society of Physics Students, Duke University, November 16, 2020.

3. Parity violation in two-nucleon systems from pionless effective field theory, Graduate Student Seminar, Duke University, October 22, 2020.

4. Low energy nuclear physics review, TUNL Informal Lunch Talks, Duke University, June 3, 2020.

5. Large-N_c study of parity nonconservation in two-nucleon systems, Graduate Student Seminar, Duke University, March 20, 2020.

TEACHING EXPERIENCE

Washington and Lee University

Instructor of Record, PHYS 111 - General Physics I — Fall 2023

Duke Pre-College Middle School Programs

Instructor of Astrophysics — Summer 2022

Department of Physics, Duke University

Bass Instructor of Record, PHY 264 - Optics and Modern Physics — Fall 2021

Teaching Assistant, PHY 762 - Electrodynamics — Spring 2020

Teaching Assistant, Guest Lecturer, PHY 464 - Quantum Mechanics I — Fall 2019

Teaching Assistant, PHY 151 - Classical Mechanics — Spring 2019

Teaching Assistant, PHY 152 - Electricity, Magnetism, Optics — Fall 2018

PEDAGOGICAL TRAINING

Kenan Institute for Ethics, Duke University

Teaching on Purpose — Spring 2022

- Explored what it means to be a good teacher of undergraduates and learned educational practices that will help students flourish, understand themselves and the world during this pivotal time in their lives.

The Graduate School, Duke University

Certificate in College Teaching — 2020 - 2021

- College Teaching and Course Design
- College Teaching, Diverse Learners and Contentious Issues
- Teaching Triangles Peer Observation Program

ADVISING & MENTORING

University Center for Exemplary Mentoring — 2022 - 2023
Graduate Administrative Intern

- Alfred P. Sloan Foundation-funded initiative to recruit, retain, and successfully graduate underrepresented minority students in physical sciences, math, and engineering Ph.D. programs. I serve as a graduate student mentor to Sloan Scholars and develop programs and materials to support them.

Duke F1RSTS-Duke LIFE mentorship program — 2021 - 2022

- Counseled first-generation Duke undergraduate students on the physics major, graduate programs, application procedures and career prospects.

  Hunter Kemeny (sophomore), Brooke Blaisdell (freshman), Melia Fox (sophomore)

Lumiere Education — 2020 - 2021

- Guided high school students in research projects of their interests and writing a 15-page research report.

  Apoorv Belgundi (India), Higgs mechanism (undergraduate at NYU '27)

  Anusha Sankholkar (India), Free space laser communication (undergraduate at NYU '26)

  Sreekar Ponnapalli (Texas), Quantum error correcting codes (undergraduate at UT Austin '26)

Conference Experience for Undergraduates (CEU20), Virtual — 2020

- Guided five undergraduate students in preparation and presentation of research findings.
- Helped students navigate the conference and networking

Duke Physics Grads Mentor/Mentee Program — 2019

- Supported one first-year physics graduate student to navigate thought the gradate programs.

Nagoya University MIRAI Global Campus program, Nagoya University — 2017, 2018

- Guided four high school students in preparation and presentation of research findings at the University of Freiburg (Germany).

SERVICE ACTIVITIES

Tutor, DukeLIFE STEM, Duke University — 2023

Judge, Science and Engineering Fair, North Carolina School of Science and Mathematics — 2023

Member, Departmental Colloquium Committee, Physics Graduate Student Organization — 2022 - 2023

Chair, Graduate Student Seminar Committee, Physics Graduate Student Organization — 2021 - 2022

Tutor, SPIRE Fellows Program, Duke University — 2020 - 2022

Physics demonstrator, Science Under the Stars, Duke University — 2018

Lead copy editor, Journal of Young Investigators 2017 - 2018

Copy editor, Journal of Young Investigators 2016 - 2017

ATTENDED SUMMER SCHOOLS

FRIB-TA Summer School on Quantum Computing and Nuclear Physics July 2022
Michigan State University, East Lansing, MI

Methods of Effective Field Theory and Lattice Field Theory (Virtual) July 2021
Bad Honnef Physics School, Bad Honnef, Germany

National Nuclear Physics Summer School August 2019
University of Tennessee, Knoxville, TN

MEMBERSHIPS

APS Division of Nuclear Physics, Student Member

APS Topical Group on Few-Body Systems and Multi-Particle Dynamics, Student Member

SKILLS

Computational: Mathematica, Python, LaTeX
Language: Vietnamese (native), English (fluent), Japanese (conversational)