Curriculum Vitae

Hariprashad Ravikumar

Physics PhD Candidate
Department of Physics
New Mexico State University
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Date of birth : March 08, 1998
Nationality : Indian
Language Proficiency : English, Tamil

PhD Research

Doctoral advisor: **Prof. Michael Engelhardt** (New Mexico State University, USA)

- **Lattice QCD calculations of TMDs**
  - My PhD research involves calculating and analyzing the longitudinal momentum fraction dependence of Transverse Momentum Dependent Parton Distribution Functions (TMDs), such as Sivers shifts (for the SIDIS and DY cases) in dynamical lattice QCD employing non-local operators with staple-shaped process-dependent Wilson lines.

Other Current Research

Research advisor: **Prof. Chueng-Ryong Ji** (North Carolina State University, USA)

- **Interpolating conformal algebra between the instant form and light front form of relativistic dynamics**
  - My research involves studying the conformal invariance of high energy scattering processes in the interpolating form dynamics where the interpolation angle parameter spans between the instant form dynamics (IFD) and the light-front dynamics (LFD).
  - My recent talks: https://crjiresearchgroup.wordpress.ncsu.edu/group-meetings/hariprashad-ravikumar/

Education

2021 - Present	PhD Physics	New Mexico State University, USA
2019 - 2021	MSc Physics	National Institute of Technology Jalandhar, Punjab, India
2015 - 2018	BSc Physics	Dr.N.G.P. Arts and Science College, Coimbatore, India
2015	High school	AGN School, Konganapuram, Tamil Nadu, India

MSc Thesis

(2021, August). **The Poincaré Algebra Interpolation between Instant Form Dynamics (IFD) and Light Front Dynamics (LFD)** (Master's thesis). Dr.B.R. Ambedkar National Institute of Technology Jalandhar, India.

Advisors: **Prof. Harleen Dahiya** (NIT-J, India), in collaboration with **Prof. Chueng-Ryong Ji** (North Carolina State University, USA).

Conference Publication

(2021, December). **Interpolating conformal algebra between the instant form and the front form of relativistic dynamics**. In Light Cone 2021: Physics of Hadrons on the Light Front, Jeju Island, South Korea. Abstract: https://indico.cern.ch/event/938795/contributions/4605229/

Internships & Schools Attended

1. (May 30 - June 16, 2023) **Hampton University Graduate Studies (HUGS) Summer Program** at **Thomas Jefferson National Accelerator Facility**, Newport News, USA, with the HUGS scholarship.
2. (Jan. 20 - 26, 2022) **2022 TMD Winter School**, Santa Fe, USA.
3. (June 21 - 25, 2021) **2021 National Nuclear Physics Summer School (NNPSS)**, at the Universidad Nacional Autónoma de México, Mexico, and Indiana University, USA (online).
4. (June 04 - Aug. 03, 2018) **2018 Astrophysics Summer School**: **An Observational View of the Universe** at the **Indian Institute of Astrophysics**, Bengaluru**,** India, with the **Indian Academy of Sciences IASC-INSA-NASI Summer Research Fellowship**.
    - I studied the photospheric and chromospheric features and Coronal activities using the data from Kodaikanal Solar Observatory under the guidance of Prof. B. Ravindra (Indian Institute of Astrophysics, Bengaluru).
5. (July 02 - 06, 2018) **2018 Radio Astronomy Summer School** at the **National Centre for Radio Astrophysics - Tata Institute of Fundamental Research**, Pune, India.

Workshops & Courses Attended

1. (Dec. 14 - 18, 2020) **XXIV The Department of Atomic Energy (DAE) - Board of Research in Nuclear Sciences (BRNS) Symposium in High Energy Physics** at the **National Institute of Science Education and Research**, India (online).
2. (Nov. 02 - 11, 2020) **International Workshop on Applications of Group Theory in Physics** at the Department of Physics, **Assam University**, Silchar, India (online).
3. (Sept. 18 - 22, 2020) **Short-Term Course on Advances in High Energy Physics** at the **National Institute of Technology Jalandhar**, India (online).
4. (Dec. 18 - 21, 2017) **National Workshop on Theoretical Physics** at **Ramakrishna Mission Vivekananda Educational and Research Institute**, Kolkata, India.
5. (Sept. 11 - 16, 2017) Global Initiative of Academic Network's course on **Introduction To Light Front Hadron Physics** by **Prof. Stanley J Brodsky** (Stanford University / SLAC) and **Prof. Chueng-Ryong Ji** (North Carolina State University) at **Mumbai University**, India.
6. (July 03 - 13, 2017) Global Initiative of Academic Network's course on **The Field Theory Of Classical And Quantum Phase Transition** by **Prof. Flávio S Nogueira** (Institute for Theoretical Solid State Physics, Germany) at the **National Institute of Technology Goa**, India.

Computer Programming Skills

- C++
- Lua
- Python
- MATLAB
- Mathematica
- Bash
- LaTeX
- HTML
- GitHub

Highlights

- Recipient of the 2023 **George and Barbara Goedecke Physics Excellence Fund Scholarship,** awarded by the NMSU Physics Department.
- Recipient of the 2021 **Graduate Success Scholarship,** awarded by the NMSU Graduate School.
- Nominated for participation in the **70th Lindau Nobel Laureate Meeting 2020, Germany,** by the **Department of Science & Technology, Government of India.**
- Published a general article titled "**Is the action S minimum or maximum?"** on the Department website, National Institute of Technology Jalandhar (https://www.nitj.ac.in/physics/article.php?event=1article971)

Graduate Assistantships

- Teaching Assistant
  - (Fall 2021 & Spring 2022)- PHYS-1320L-CALCULUS-BASED PHYSICS (E&M) II LAB - NMSU - Duties: Conducting labs, lectures, tutoring, and grading
  - (Fall 2022)- PHYS-2110L-EXPERIMENTAL MECHANICS LAB - NMSU - Duties: Conducting labs, lectures, tutoring, and grading
  - (Spring 2023) - PHYS-1311-M01-PROB IN CALC-BASED PHYSICS I - NMSU (Supplemental Instructor)- Duties: Lectures, tutoring, and grading
- Research Assistant
  - (Summer 2022 & Fall 2022 - Spring 2024) - under Dr. Michael Engelhardt, NMSU - Duties: Conducting research in lattice QCD for my Ph.D. research

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