

Vishvas Pandey

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Current Position

June 2022 - present: Wilson Fellow Associate Scientist, Neutrino Division, Fermi National Accelerator Laboratory, Batavia, Illinois, USA.

Previous Positions

May 2019 - May 2022: Postdoctoral Research Associate, Department of Physics, University of Florida, Gainesville, Florida, USA. Based full-time at Fermi National Accelerator Laboratory, Batavia, Illinois, USA.

October 2016 - May 2019: Postdoctoral Research Associate, Center for Neutrino Physics, Virginia Tech, Blacksburg, Virginia, USA.

Visiting Positions Held

Fermilab: Aug 2019 - May 2022 (SBND), Apr - May 2017 (ICARUS), Nov - Dec 2016 (MicroBooNE)

Los Alamos National Lab: Dec 2019, May - Aug 2019 (Coherent CAPTAIN-Mills experiment)

CERN: Sep - Oct 2018, May - Jul 2018 (protoDUNE)

Jefferson Lab: Jan - Feb 2018, Feb - Apr 2017 (Electron-Argon Scattering Experiment [E12-14-012])

Ghent University, Belgium: Jul 2017, Apr - Sep 2016 (theory work on neutrino interactions)

Education

March 2016: Ph.D. in Theoretical Physics, Ghent University, Ghent, Belgium. [July 2010 - March 2016]

Full-time Ph.D. position funded by the prestigious competitive European Commission's Erasmus Mundus Ph.D. scholarship and funding from the Belgian Science Policy Office.

Ph.D. Dissertation: Modeling electroweak quasielastic scattering off nuclei in kinematics relevant for accelerator-based neutrino-oscillation experiments.

Advisors: Prof. Dr. Natalie Jachowicz and Prof. Dr. Jan Ryckebusch.

May 2010: M.Sc. Physics, specialization in nuclear and particle physics, Indian Institute of Technology Roorkee, Roorkee, India. [July 2008 - May 2010]

Admitted to the M.Sc. program through a competitive, nationwide test entrance exam which has a success rate of $\sim 2.0\%$.

Master's Thesis: Neutrino masses in large volume compactifications in string theory framework.

Advisor: Prof. Dr. Aalok Misra.

May - July 2009: Summer research project as a 'Young Scientist Research Fellow', Raja Ramanna Centre for Advanced Technology, Indore, India.

Thesis: A theoretical study of stimulated Raman scattering in one dimensional Mott-Hubbard systems.

Advisors: Dr. Haranath Ghosh and Dr. Rama Chari.

May 2007: B.Sc. Physics and Mathematics, M. J. P. Rohilkhand University, India. [July 2004 - May 2007]

Grants and Scholarships

Awarded Grants and Scholarships

June 2022 - present: Wilson Fellowship awarded at Fermi National Accelerator Laboratory, Batavia, Illinois, USA.

2014 - 2015: Full-time Ph.D. position funded by Interuniversity Attraction Poles Program initiated by the Belgian Science Policy Office.

2010 - 2013: Full-time prestigious competitive Ph.D. scholarship awarded by the European Commission's initiative Erasmus Mundus External Cooperation Window (EMECW) lot 13 project.

April - June 2011: Scholarship awarded by the European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*, Trento, Italy) for the Doctoral Training Program on Neutrinos in Nuclear and Particle Physics.

June 2010: Ph.D. Fellowship awarded by the Council for Scientific and Industrial Research (CSIR, India) after qualifying the Nationwide Joint CSIR-UGC National Eligibility Test (NET) with high national ranking. (*Declined*)

May - July 2009: 'Young Scientist Research Fellowship' awarded by the Indian Department of Atomic Energy's Raja Ramanna Centre for Advanced Technology, Indore, India.

Contribution to Grant Proposals and Reports for Funding Agencies

Spring 2021: Contributed to the DOE-DMNI (Dark Matter New Initiative) report for the CCM experiment (Los Alamos Lab).

Fall 2019: Contributed to the development of the University of Florida PI's successful DOE grant proposal.

Fall 2018: Contributed to the development of the Virginia Tech PI's successful DOE grant proposal.

Leadership and Other Roles in Scientific Collaborations

A. SBND Collaboration (Fermilab) [May 2019 - present]

Physics Convener Role [July 2022 - present]

- Appointed as a co-convener of the Neutrino Interaction Cross Section Working Group of the collaboration.
- Planning, coordinating and overseeing all neutrino interaction cross section physics analysis of the collaboration.
- Running collaboration-wide weekly meetings.

Project Management Role [September 2019 - September 2022]

- Appointed as a L3 project manager responsible for the photon detection (PD) and calibration system integration and installation.
- In charge of coordinating efforts of both PD systems (PMT and X-ARAPUCA) across multiple universities/national labs and overseeing the integration of the entire PD system with the SBND detector.
- Updating the monthly turnaround documents to track progress, routinely tracking risk registry of PD system, developing interface documents with other subsystems and QA/QC requirements and database for the PD system.
- Running collaboration-wide biweekly SBND PD systems meetings and representing the PD system in technical reviews, Fermilab directorate reviews, etc.
- The role concluded in September 2022 after the successful integration and installation of the PD system on SBND detector.

Chair of the Speakers' Committee

- Appointed as the chair of the Speakers' Committee [May 2022 - present], previously served as a member of the committee [Nov 2019 - Apr 2022]. Responsible for overseeing and coordinating all SBND conference and seminar presentations and speaker selection.

Chair of the Code of Conduct Committee [September 2020 - April 2022]

- Appointed as the first chair of the Code of Conduct (CoC) Committee. Co-developed the SBND's first CoC focusing on fostering diversity, equity and inclusion within the collaboration.

SBND Local Journal Club [August 2022 - present]

- Initiated and leading the SBND Local Journal Club at Fermilab.

B. Coherent CAPTAIN-Mills (CCM) Collaboration (Los Alamos Lab) [May 2019 - present]

Installation: Developing and coordinating CCM's photon detection and calibration system's integration into the SBND experiment.

Physics: Low-energy inelastic neutrino-nucleus scattering simulation and measurement, and exploiting its synergy with DUNE's supernova program. Elastic and inelastic dark matter (produced in the beam target) scattering.

C. Neutrino Scattering Theory Experiment Collaboration (NuSTEC) [December 2020 - present]

Board Member of the Collaboration [December 2020 - present]

Co-convener of the Outreach Working Group [November 2021 - present]

D. Electron-Argon Scattering Experiment [E12-14-012] (Jefferson Lab Hall A) [November 2016 - May 2019]

Physics Analysis Coordinator Role [February 2017 - May 2019]

- Served as the collaboration's sole analysis coordinator. Organized and ran weekly analysis meetings, and annual analysis workshops. Mentored a team of graduate students performing physics analysis.

- Led the first two physics measurements of the experiment including the first ever electron-argon cross section measurement at Jefferson Lab. Primary author of the first two Phy. Rev. C papers and first two conference proceedings of the experiment.

Run Coordinator Role [February 2018]

- Served as the Run coordinator of JLab Hall A. Responsible for the data taking operations of the detectors with the goal to deliver physics quality data efficiently to the collaboration.

E. Neutrinos at the Forward Physics Facility (FPF) (CERN) [May 2021 - May 2022]

Topical Convener of the Neutrino Physics Working Group [May 2021 - May 2022]

- Coordinated efforts in laying out neutrino physics capabilities of the FPF at CERN documented in two publications and two workshops.

F. PLAFOND/Neutrino Platform (CERN) [October 2017 - April 2019]

Served as the invited Team Leader of the Virginia Tech team.

G. MicroBooNE Collaboration (Fermilab) [November 2016 - April 2019]

Expert role in data and Monte-Carlo production group (~ 6 months). Participated in cross section and systematics groups. Set up and maintained MicroBooNE remote control room at Virginia Tech.

H. protoDUNE (CERN) [Non-member] [May 2018 - October 2018]

Co-led the installation and commissioning of the entire cosmic ray tagger system of the single-phase protoDUNE experiment.

I. ICARUS (Fermilab) [Non-member] [April 2017 - May 2017]

Trained the team at Fermilab in installing the bottom (under the cryostat) cosmic ray taggers.

Professional Service in the Scientific Community**A. Snowmass 2021**

July 2020 - July 2022: Early career representative (co-leader) for the Neutrino physics Frontier (NF). Co-organized biweekly meetings with the broader early career neutrino community to promote our engagement in the Snowmass process. Represented early career members in the NF meetings.

July 2020 - July 2022: Early career liaison of the NF06 (Neutrino Interaction Cross Section) topical group. Co-organized three NF Snowmass workshops. Lead editor of an NF06 white paper.

July 2020 - October 2020: Served as an early career representative in the Program Committee of the Snowmass Community Planning Meeting held in October 2020.

See Symmetry Magazine article on my involvement in Snowmass 2021: [Defining the next decade of US particle physics](#).

B. Journal Referee

July 2017 - present: Reviewer of Physical Review C, Physical Review D, Physical Review Letters, and Reviews of Modern Physics.

November 2021 - present: Invited reviewer of Physics Letters B.

C. Conferences, Workshops and Schools Organized

August 2023 (*Upcoming*): Co-organizing the 14th International Neutrino Summer School (INSS 2023) to be held at the Fermi National Accelerator Laboratory in Batavia, IL, USA.

April 2023 (*Upcoming*): Co-organizing the workshop "Interplay of Nuclear, Neutrino and BSM Physics at Low-Energies" to be held at the Institute for Nuclear Theory, University of Washington, Seattle, WA, USA.

September 2022: Chaired a "Neutrino-nucleus Interactions" session at CIPANP 2022, 14th Conference on the Intersections of Particle and Nuclear Physics, Orlando, Florida.

July 2022: Co-chaired a Neutrino Frontier Early Career session "DUNE and Neutrino Interactions" at the Snowmass Community Summer Study, Seattle, USA.

June 2022: Judged the Poster Session at 55th Annual Fermilab Users Meeting, Fermilab.

November 2021: Co-organized "Snowmass NF06 Low Energy Neutrinos and Electron Scattering Workshop" [Virtual].

October 2021: Co-organized and chaired the "Event Generators for Neutrino Interactions" session at the "3rd Forward Physics Facility Meeting" [Virtual].

September 2021: Chaired joint WG1 (Neutrino Oscillation Physics) + Working Group 2 (Neutrino Scattering Physics) session, NuFact 2021, 22nd International Workshop on Neutrinos from Accelerators, Cagliari, Italy.

March 2021: Co-organized "NuSTEC New Directions in Neutrino-Nucleus Scattering Workshop" [Virtual].

December 2020: Co-organized "Snowmass NF06 Electron Scattering Workshop" [Virtual].

October 2020: Co-organized "Snowmass Community Planning Meeting" [Virtual].

September 2020: Co-organized "Snowmass Mini-Workshop on Neutrino Theory" [Virtual].

November 2019: Chaired Particle Physics-I session of 86th annual meeting of the Southeastern Section of the American Physical Society (SESAPS) 2019, Wrightsville Beach, North Carolina, USA.

August 2018: On-site convener of Working Group 2 (Neutrino Scattering Physics), NUFAC2018, 20th International Workshop on Neutrino Factories and Future Neutrino Facilities, Virginia Tech, Virginia, USA.

November 2017: Co-organized "NuSTEC Training in Neutrino-Nucleus Scattering Physics", Fermilab, Batavia, Illinois, USA.

Professional Service at Home Institutions

Fall 2022 - present: Member of the Scientist Advisory Council at Fermilab.

Fall 2022 - present: Member of the Summer Undergraduate Laboratory Internship (SULI) committee, an internship sponsored by the DOE Office of Science, at Fermilab.

Fall 2022: Served on the Research Associate hiring committee for the Neutrino Division at Fermilab.

2017: Reviewer of undergraduate scholarship applications in the College of Science at Virginia Tech.

Diversity & Outreach Activities

A. Positions Held

Diversity Coordinator

- Diversity coordinator of the workshop "Interplay of Nuclear, Neutrino and BSM Physics at Low-Energies" to be held at the Institute for Nuclear Theory, University of Washington, Seattle, WA, USA [April 2023]

Chair of the Code of Conduct Committee of the SBND collaboration [September 2020 - April 2022]

- Following the co-organization of diversity, equity and inclusion-related discussions during the SBND's collaboration meeting, appointed as the first Chair of the SBND Code of Conduct (CoC) Committee.

- Coordinated and co-developed the collaboration's first CoC which focuses on fostering diversity, equity and inclusion within the collaboration.

Co-convener of the Outreach Working Group of the NuSTEC collaboration [November 2021 - present]

- Overseeing outreach activities of the NuSTEC collaboration.

B. Organization, Workshops and Tours

July 2022 - present: Frequently give tours of Fermilab's neutrino campus and facility to local high school, undergrad students, and teachers as well as to official delegates.

February 2020: Volunteered at the workshops 'Ask a Scientist' and 'Fun with Magnets' at the Fermilab Open House.

January 2020: Participated in the "Skype a Scientist" network, a program aimed to connect school students with working scientists, I did a session at a public school with high percentage of low-income and traditionally underrepresented students.

July 2018: Volunteered at CineGlobe festival at CERN and 'La Nuit de la Science' ['The Night of Science'] in Geneva, Switzerland.

Spring 2018: Led Neutrino Physics lab tours (including demonstrations, interactive seminar, etc.) to multiple groups of Virginia high school students and prospective undergraduate students, Virginia Tech, Virginia, USA.

Spring 2018: Led Neutrino Physics lab tour (including demonstrations, interactive seminar, etc.) to faculty members and undergraduate students of a Virginia Community College, Virginia Tech, Virginia, USA.

January 2015: Co-organized a 'Kinderuniversiteit' ['Children's University'] workshop 'Diffraction and Spectroscopy' for primary school children during the 'Licht Festival Gent' ['Light Festival Ghent'] organized by the city of Ghent, Belgium.

July 2012 - July 2015: Co-organized TEDxGhent events in Ghent (Belgium), a non-profit organization where renowned people present their ideas and work to the public. I co-organized six major events (with 500 attendees at three of those events) with leading roles in event management, speaker selection, technical assistance, and production of the talks.

February 2015: Co-organized Women in STEM event as part of TEDxGhent (Belgium), an event focused on bringing women who are reshaping the STEM's world to TEDx stage.

March 2009: Co-convener of the annual technical festival 'Cognizance' (one of the largest technical festivals in Asia), a three-day event focusing on science and technology, Department of Physics, Indian Institute of Technology Roorkee, Roorkee, India.

C. Presentations

July 2018: 'Unraveling mysteries of the Universe through neutrinos: The complexity/simplicity of details in approaching a research problem', presented to a group of Virginia high school teachers of QuarkNet network, Virginia Tech, Virginia, USA

January 2018: 'The knowns and unknowns of our Universe and how do we know it', a public lecture at a local college, Uttar Pradesh, India.

November 2015: 'Neutrinos: Key to the mysteries of our Universe', a talk given at a public event 'Dag van de Wetenschap' ['Science Day'] in Ghent, Belgium.

July 2015: 'Neutrinos, you, and the Universe', performed in a stand-up science show organized by 'Let's talk science', a science communication initiative of Belgian universities.

March 2015: 'Revealing secrets of the Universe through neutrinos', a talk given at a public event organized by TEDxGhent in Ghent, Belgium.

Mentoring and Teaching Experience

A. Mentorship in Experimental Collaborations Roles

July 2022 - present: In my role as a co-convener of the Neutrino Interaction Cross Section Working Group of the SBND collaboration, I mentor a group of graduate students and postdocs performing physics analysis.

November 2019 - September 2022: In my role as project manager of the PD system installation and commissioning in the SBND experiment, I mentored a number of students and post-docs visiting Fermilab to work on the PD system.

February 2017 - April 2019: In my role as Analysis Coordinator of the electron-argon Jefferson Lab experiment, I mentored a group of graduate students performing physics analysis.

B. Direct Mentorship of Graduate and Undergraduate Students

Fall 2022: Supervised a Summer Undergraduate Laboratory Intern (SULI) at Fermilab.

August 2019 - May 2022: Co-supervised two graduate students of the group at the University of Florida.

October 2016 - January 2019: Co-supervised three graduate students of the group at Virginia Tech, Virginia, USA.

C. Teaching

Spring Semester 2019: Taught full-time big-auditorium (~180 students) General Physics Course (Phys-2206) to Life Science students at Virginia Tech, Virginia, USA. This included preparing and delivering lectures, recitations, homeworks, grading, assessment design, etc.

Spring Semester 2019: Taught full-time big-auditorium (~170 students) Introductory Physics Course (Phys-2306) to Engineering students at Virginia Tech, Virginia, USA. This included preparing and delivering lectures, recitations, homeworks, grading, assessment design, etc.

Spring Semester 2018: Taught two substitute lectures of Introduction to Quantum Mechanics (Phy-4455), and two substitute lectures of Foundation of Physics (Phy-2305), Virginia Tech, Virginia, USA.

Selected Publications

[A full list of publications can be found at [INSPIRE-HEP](#)]

38. (*Snowmass Frontier Report*) P. Huber *et al.* "Snowmass Neutrino Frontier Report," [[arXiv:2211.08641](#) [[hep-ex](#)]].
37. (*Snowmass Topical Group Report*) A. B. Balantekin, S. Gardiner, K. Mahn, T. Mohayai, J. Newby, **V. Pandey**, J. Zettlemoyer *et al.* "Snowmass Neutrino Frontier: Neutrino Interaction Cross Sections (NF06) Topical Group Report," [[arXiv:2209.06872](#) [[hep-ex](#)]].
36. (*Journal Article*) B. Dutta, W. C. Huang, J. L. Newstead and **V. Pandey**, "Inelastic nuclear scattering from neutrinos and dark matter," *Phys. Rev. D* **106**, 113006 (2022) [[arXiv:2206.08590](#) [[hep-ph](#)]].
35. (*Snowmass White Paper*) J. M. Campbell *et al.* "Event Generators for High-Energy Physics Experiments," [[arXiv:2203.11110](#) [[hep-ph](#)]].
34. (*Snowmass White Paper*) A. M. Ankowski *et al.* "Electron Scattering and Neutrino Physics," [[arXiv:2203.06853](#) [[hep-ex](#)]].
33. (*Snowmass White Paper*) M. Abdullah *et al.* "Coherent elastic neutrino-nucleus scattering: Terrestrial and astrophysical applications," [[arXiv:2203.07361](#) [[hep-ph](#)]].
32. (*Journal Article*) J. L. Feng *et al.* "The Forward Physics Facility at the High-Luminosity LHC," *J. Phys. G* **50**, 030501 (2023) [[arXiv:2203.05090](#) [[hep-ex](#)]].
31. (*Journal Article*) L. Jiang *et al.* [Jefferson Lab Hall A], "Determination of the argon spectral function from $(e, e'p)$ data," *Phys. Rev. D* **105**, 112002 [[arXiv:2203.01748](#) [[nucl-ex](#)]].

30. (*Journal Article*) S. Dolan, A. Nikolakopoulos, O. Page, S. Gardiner, N. Jachowicz and **V. Pandey**, "Implementation of the CRPA model in the GENIE event generator and analysis of nuclear effects in low-energy transfer neutrino-nucleus interactions," *Phys. Rev. D* **106**, 073001 (2022) [[arXiv:2110.14601](#) [[hep-ex](#)]].
29. (*Journal Article*) L. A. Anchordoqui *et al.*, "The Forward Physics Facility: Sites, Experiments, and Physics Potential," *Phys. Rept.* **968**, 1-50 (2022) [[arXiv:2109.10905](#) [[hep-ph](#)]].
28. (*Journal Article*) A. A. Aguilar-Arevalo *et al.* [CCM Collaboration], "First Dark Matter Search Results From Coherent CAPTAIN-Mills," *Phys. Rev. D* **106**, 012001 (2022) [[arXiv:2105.14020](#) [[hep-ex](#)]].
27. (*Journal Article*) O. Tomalak, P. Machado, **V. Pandey** and R. Plestid, "Flavor-dependent radiative corrections in coherent elastic neutrino-nucleus scattering," *JHEP* **02** 097 (2021) [[arXiv:2011.05960](#) [[hep-ph](#)]].
26. (*Journal Article*) A. Nikolakopoulos, **V. Pandey**, J. Spitz and N. Jachowicz, "Quasielastic interactions of monoenergetic kaon decay-at-rest neutrinos," *Phys. Rev. C* **103**, 064603 (2021) [[arXiv:2010.05794](#) [[nucl-th](#)]].
25. (*Journal Article*) N. Van Dessel, **V. Pandey**, H. Ray and N. Jachowicz, "Nuclear Structure Physics in Coherent Elastic Neutrino-Nucleus Scattering," [[arXiv:2007.03658](#) [[nucl-th](#)]].
24. (*Conference Proceedings*) A. Nikolakopoulos, N. Jachowicz, R. González-Jiménez, J. M. Udías, K. Niewczas and **V. Pandey**, "Non-trivial differences between charged current ν_e and ν_μ induced interactions with nuclei," *PoS NuFact2019*, 048 (2020).
23. (*Journal Article*) M. Murphy *et al.* [The Jefferson Lab Hall A Collaboration], "Measurement of the cross sections for inclusive electron scattering in the E12-14-012 experiment at Jefferson Lab", *Phys Rev. C***100**, 054606 (2019) [[arXiv:1908.01802](#) [[hep-ex](#)]].
22. (*Journal Article*) A. Nikolakopoulos, N. Jachowicz, N. Van Dessel, K. Niewczas, R. González-Jiménez, J. Manuel Udías, **V. Pandey**, "Electron versus muon neutrino induced cross sections in charged current quasi-elastic processes", *Phys. Rev. Lett.* **123**, 052501 (2019) [[arXiv:1901.08050](#) [[nucl-th](#)]].
21. (*Conference Proceedings*) **V. Pandey**, H. Dai, M. Murphy, and D. Abrams, "Electron-argon scattering studies at Jefferson Lab", *PoS NUFACT2018*, 017 (2019).
20. (*Conference Proceedings*) K. Niewczas, N. Jachowicz, A. Nikolakopoulos, J. Nys, N. Van Dessel, R. González Jiménez, and **V. Pandey**, "Modeling neutrino-nucleus interactions in the few-GeV region", *PoS NUFACT2018*, 031 (2019).
19. (*Journal Article*) S. N. Santiesteban *et al.* "Density Changes in Low Pressure Gas Targets for Electron Scattering Experiments", *Nucl. Instrum. Meth. A***940**, 351 (2019) [[arXiv:1811.12167](#) [[physics.ins-det](#)]].
18. (*Journal Article*) H. Dai, M. Murphy, **V. Pandey** *et al.* [The Jefferson Lab Hall A Collaboration], "First Measurement of the Ar(e, e')X Cross Section at Jefferson Lab", *Phys. Rev. C***99**, 054608 (2019) [[arXiv:1810.10575](#) [[nucl-ex](#)]].
17. (*Journal Article*) H. Dai, M. Murphy, **V. Pandey** *et al.* [The Jefferson Lab Hall A Collaboration], "First Measurement of the Ti(e, e')X Cross Section at Jefferson Lab", *Phys. Rev. C***98**, 014617 (2018) [[arXiv:1803.01910](#) [[nucl-ex](#)]].

16. (*Conference Proceedings*) **V. Pandey et al.**, "Probing electron-argon scattering for liquid-argon based neutrino-oscillation program", Bled Workshops in Physics, Vol. 18, No. 3 (2018) [[arXiv:1711.01671](#) [[nucl-ex](#)]].
15. (*Journal Article*) N. Van Dessel, N. Jachowicz, R. González-Jiménez, **V. Pandey**, and T. Van Cuyck, "A-dependence of quasielastic charged-current neutrino-nucleus cross sections", Phys. Rev. **C97**, 044616 (2018) [[arXiv:1704.07817](#) [[nucl-th](#)]].
14. (*Conference Proceedings*) R. González Jiménez, N. Jachowicz, A. Nikolakopoulos, J. Nys, T. Van Cuyck, N. Van Dessel, K. Niewczas, and **V. Pandey**, "Modeling neutrino-nucleus interaction at intermediate energies", PoS NUFAC2017, 072 (2017) .
13. (*Journal Article*) R. González Jiménez, N. Jachowicz, K. Niewczas, J. Nys, **V. Pandey**, T. Van Cuyck, and N. Van Dessel, "Electroweak single-pion production off the nucleon: from threshold to high invariant masses", Phys. Rev. **D95**, 113007 (2017) [[arXiv:1612.05511](#) [[nucl-th](#)]].
12. (*Conference Proceedings*) N. Van Dessel, N. Jachowicz, R. González Jiménez, **V. Pandey**, and T. Van Cuyck, "Quasielastic neutrino-argon cross sections in a CRPA approach", Acta Phys. Polon. Supp. **9**, 811 (2016).
11. (*Journal Article*) **V. Pandey**, N. Jachowicz, M. Martini, R. González Jiménez, J. Ryckebusch, T. Van Cuyck, and N. Van Dessel, "Impact of low-energy nuclear excitations on neutrino-nucleus scattering at MiniBooNE and T2K kinematics", Phys. Rev. **C94**, 054609 (2016) [[arXiv:1607.01216](#) [[nucl-th](#)]].
10. (*Conference Proceedings*) N. Jachowicz, **V. Pandey**, M. Martini, R. González Jiménez, T. Van Cuyck, and N. Van Dessel, "CRPA calculations for neutrino-nucleus scattering: From very low energies to the quasielastic peak", JPS Conf. Proc. **12**, 010018 (2016).
9. (*Conference Proceedings*) T. Van Cuyck, **V. Pandey**, N. Jachowicz, R. González Jiménez, M. Martini, J. Ryckebusch, and N. Van Dessel, "Correlations in neutrino-nucleus scattering", (proceedings NuFact15) SLAC-econf-C1508102 (2016) [[arXiv:1606.08636](#) [[nucl-th](#)]].
8. (*Journal Article*) T. Van Cuyck, N. Jachowicz, R. González Jiménez, M. Martini, **V. Pandey**, J. Ryckebusch, and N. Van Dessel, "Influence of short-range correlations in neutrino-nucleus scattering", Phys. Rev. **C94**, 024611 (2016) [[arXiv:1606.00273](#) [[nucl-th](#)]].
7. (*Conference Proceedings*) R. González Jiménez, T. Van Cuyck, N. Van Dessel, **V. Pandey**, and N. Jachowicz, "Neutrino-Induced $1-\pi$ Production", proceedings NuInt15, JPS Conf. Proc. **12**, 010047 (2016) [[arXiv:1602.05096](#) [[nucl-th](#)]].
6. (*Journal Article*) M. Martini, N. Jachowicz, M. Ericson, **V. Pandey**, T. Van Cuyck, and N. Van Dessel, "Electron-neutrino scattering off nuclei from two different theoretical perspectives", Phys. Rev. **C94**, 015501 (2016) [[arXiv:1602.00230](#) [[nucl-th](#)]].
5. (*Conference Proceedings*) **V. Pandey**, N. Jachowicz, T. Van Cuyck, J. Ryckebusch, and M. Martini, "Quasielastic electron- and neutrino-nucleus scattering in a continuum random phase approximation approach", PoS NUFAC2014, 055 (2015) [[arXiv:1501.04018](#) [[nucl-th](#)]].
4. (*Conference Proceedings*) N. Jachowicz, and **V. Pandey**, "Low-energy neutrino-nucleus interactions and beta-beam neutrino", AIP Conf. Proc. **1663**, 050003 (2015).
3. (*Featured Magazine Article*) **V. Pandey**, and N. Jachowicz, "Modeling neutrino-nucleus interactions for accelerator-based neutrino-oscillations experiments", featured article, BPhy - Belgian Physical Society Magazine - 02/2015.

2. (*Journal Article*) **V. Pandey**, N. Jachowicz, T. Van Cuyck, J. Ryckebusch, and M. Martini, "Low-energy excitations and quasielastic contribution to electron- and neutrino-nucleus scattering in the continuum random phase approximation", *Phys. Rev. C* **92**, 024606 (2015) [[arXiv:1412.4624](#) [[nucl-th](#)]].
1. (*Journal Article*) **V. Pandey**, N. Jachowicz, J. Ryckebusch, T. Van Cuyck, and W. Cosyn, "Quasielastic contribution to antineutrino-nucleus scatterings", *Phys. Rev. C* **89**, 024601 (2014) [[arXiv:1310.6885](#) [[nucl-th](#)]].

Conference Talks, Seminars and Posters

[Summary: 25 Invited Talks + 3 Invited Conference Summary Talks + 2 Invited Panelist + 29 Contributed Conference Talks and Seminars + 6 Posters]

[** Invited Contributions]

59. ** September 2022: (*Invited Plenary Talk*) "Overview of neutrino-nucleus interactions and its impact on accelerator-based neutrino experiments", NuDM 2022, International Conference on Neutrinos and Dark Matter [Virtual].
58. ** September 2022: (*Invited Talk*) "Theory Overview of Coherent Elastic and Inelastic Neutrino-Nucleus Scattering", CIPANP 2022, 14th Conference on the Intersections of Particle and Nuclear Physics, Orlando, Florida.
57. ** August 2022: (*Invited Plenary Talk*) "Potential Constraints to Neutrino - Nucleus Interactions Based on Electron Scattering Data", NuFact 2022, 23rd International Workshop on Neutrinos from Accelerators, Salt Lake City, Utah.
56. ** May 2022: (*Invited Talk*) "Low Energy Neutrino-Nucleus Interactions", Mitchell Conference on Collider, Dark Matter, and Neutrino Physics 2022, Texas A&M University, College Station, Texas.
55. ** March 2022: (*Invited Talk*) "Low Energy Neutrino Interactions", NuSTEC Workshop on Electron Scattering [Virtual].
54. ** February 2022: (*Conference Summary Talk*) "FPF White Paper: Neutrino Event Generators", 2nd Forward Physics Facility (FPF) Meeting [Virtual].
53. ** January 2022: (*Invited Talk*) "Neutrinos at the Forward Physics Facility at CERN", Workshop on Neutrino-Nucleus Interactions in the Standard Model and Beyond, CERN, Geneva, Switzerland.
52. ** September 2021: (*Invited Talk*) "The influence of cross section uncertainties on oscillation analyses", NuFact 2021, 22nd International Workshop on Neutrinos from Accelerators, Cagliari, Italy.
51. June 2021: (*Seminar*) "SBND-PRISM: Sampling Multiple Off-Axis Fluxes with the Same Detector", NuSTEC Cross Experimental Working Group Meeting [Virtual].
50. ** May 2021: (*Invited Talk*) "Neutrino Cross-Section Opportunities at FPF at CERN", 2nd Forward Physics Facility (FPF) Meeting [Virtual].
49. ** March 2021: (*Invited Talk*) "Low-energy neutrino-nucleus interactions: theory and generators", New Directions in Neutrino-Nucleus Scattering NuSTEC Workshop [Virtual].

48. ** March 2021: (*Invited Panelist*) Invited panelist in the "Neutrino Interaction Discussion Session", NuSTEC New Directions in Neutrino-Nucleus Scattering Workshop [Virtual].
47. February 2021: (*Seminar*) "Neutrino interactions and the quest for new and precision physics searches in neutrino experiments", Particle Physics Seminar, Brookhaven National Laboratory, Upton, NY, USA [Virtual].
46. ** February 2021: (*Invited Talk*) "Synergy between nuclear physics in CEvNS experiments and long-baseline oscillation experiments", First Workshop of The BSM-Nu Project (P2IO labex, Saclay) [Virtual].
45. ** December 2020: (*Invited Talk*) "Coherent elastic and inelastic neutrino-nucleus scattering at stopped-pion sources", NuSTEC board annual meeting, December, 2020 [Virtual].
44. ** December 2020: (*Invited Panelist*) Invited panelist in the "Low Energy Neutrino Interaction Discussion Session", Low Energy Physics in Liquid Argon (LEPLAr) Workshop (organized by the DUNE collaboration) [Virtual].
43. December 2020: (*Collaboration Meeting*) "Theoretical Motivation: CEvNS, NSI and inelastic neutrino-nucleus scattering physics prospects in CCM", CCM collaboration meeting, December, 2020 [Virtual].
42. ** November 2020: (*Invited Talk*) "Coherent Elastic and Inelastic Neutrino-Nucleus Scattering Within a Many-Body Nuclear Theory Approach", Magnificent CEvNS 2020, November, 2020 [Virtual].
41. ** October 2020: (*Invited Seminar*) "Nuclear Physics Aspects of Coherent Elastic Neutrino-Nucleus Scattering", Nuclear Physics Seminar, University of Kentucky, Lexington, Kentucky, USA [Virtual].
40. ** September 2020: (*Invited Seminar*) "Nuclear Physics Aspects of Coherent Elastic Neutrino-Nucleus Scattering", SBN-Theory meetings, Fermilab, Batavia, Illinois, USA [Virtual].
39. ** August 2020: (*Invited Talk*) "The influence of cross section uncertainties on oscillation analyses", Nufact 2020, 22nd International Workshop on Neutrinos from Accelerators, Cagliari, Italy [Conference postponed due to Covid-19].
38. July 2020: (*Conference*) "Constraining Nuclear Structure Physics in Coherent Elastic Neutrino-Nucleus Scattering", New Perspectives 2020, Fermilab, Batavia, Illinois, USA [Virtual].
37. March 2020: (*Seminar*) "Lepton-nucleus scattering within Hartree-Fock and continuum Random Phase Approximation approach", Neutrino Joint Theory-Experiment WG Meeting, Fermilab, Batavia, Illinois, USA.
36. March 2020: (*Seminar*) "Low-energy neutrino-nucleus cross section calculations and prospects of measuring them in SBND", SBND meeting, Fermilab, Batavia, Illinois, USA.
35. ** November 2019: (*Invited Talk*) "Short-Baseline Neutrino Program at Fermi National Accelerator Laboratory", 86th annual meeting of the Southeastern Section of the American Physical Society (SESAPS) 2019, Wrightsville Beach, North Carolina, USA.
34. September 2019: (*Seminar*) "Low-energy lepton-nucleus scattering: nue, numu cross section", MicroBooNE oscillations meeting, Fermilab, Batavia, Illinois, USA.

33. July 2019: (*Seminar*) "Lepton-nucleus scattering and the search for new and precision physics in neutrino experiments", P-25 Seminar, Los Alamos National Laboratory, Los Alamos, New Mexico, USA.
32. July 2019: (*Collaboration Meeting*) "Neutrino-argon cross sections and non-standard neutrino interactions in CCM", CCM collaboration meeting, Los Alamos National Laboratory, Los Alamos, New Mexico, USA.
31. June 2019: (*Collaboration Meeting*) "Low-energy neutrino-nucleus interactions: nue, numu cross section", SBND collaboration meeting, University of Michigan, Ann Arbor, Michigan, USA.
30. May 2019: (*Seminar*) "Neutrino-Nucleus Interactions and Recent Ar(e, e') Measurements at Jefferson Lab", Center for Neutrino Physics Research Day at Virginia Tech, Blacksburg, Virginia, USA.
29. January 2019: (*Seminar*) "Neutrino-oscillation and neutrino-interaction physics at Virginia Tech", research seminar presented to first year graduate students at Virginia Tech, Virginia, USA.
28. January 2019: (*Seminar*) "Lepton-nucleus scattering and its impact on the precision and new physics searches at the intensity frontier experiments", Theory Seminar, Physics Division, Argonne National Laboratory, Lemont, Illinois, USA.
27. ** December 2018: (*Invited Talk*) "Hartree-Fock & continuum RPA calculations of lepton-nucleus interactions, and recent Ar(e, e') measurements at Jlab", Physics Opportunities in the Near DUNE Detector Hall: PONDD, Fermilab, Batavia, Illinois, USA.
26. ** October 2018: (*Conference Summary Talk*) "Theory: Summary and Outlook", NuInt 18, 12th International Workshop on Neutrino-Nucleus Interactions in the Few-GeV Region, Gran Sasso Science Institute, L'Aquila, Italy.
25. ** October 2018: (*Invited Talk*) "Lepton-nucleus cross sections within Hartree-Fock and continuum random phase approximation approach", NuInt 18, 12th International Workshop on Neutrino-Nucleus Interactions in the Few-GeV Region, Gran Sasso Science Institute, L'Aquila, Italy.
24. ** August 2018: (*Conference Summary Talk*) "Summary and Outlook of Working Group 2 (Neutrino Scattering Physics)", NUFACT2018, 20th International Workshop on Neutrino Factories and Future Neutrino Facilities, Virginia Tech, Blacksburg, Virginia, USA.
23. ** August 2018: (*Invited Plenary Talk*) "Cross sections, electron scattering, and new results from electron-argon experiment at Jefferson Lab", NUFACT2018, 20th International Workshop on Neutrino Factories and Future Neutrino Facilities, Virginia Tech, Blacksburg, Virginia, USA.
22. ** June 2018: (*Invited Talk*) "An overview of neutrino cross sections and challenges", Workshop on near detector physics at neutrino experiments, CERN, Geneva, Switzerland.
21. April 2018: (*Seminar*) "Nuclear physics of neutrino-oscillation endeavour", Center for Neutrino Physics seminar at Virginia Tech, Blacksburg, Virginia, USA.
20. March 2018: (*Conference*) "First cross section results from e-Ar experiment at Jefferson Lab", INT Program INT-18-1a, Nuclear ab initio Theories and Neutrino Physics, Institute for Nuclear Theory, Seattle, Washington, USA.
19. ** January 2018: (*Invited Talk*) "Status of electron scattering studies on argon and titanium nucleus at Jefferson Lab", Hall A Collaboration Meeting, Jefferson Lab, Newport News, Virginia, USA.

18. December 2017: (*Seminar*) "Neutrino-oscillation and neutrino-interaction physics", research seminar presented to first year graduate students at Virginia Tech, Virginia, USA.
17. July 2017: (*Seminar*) "Impact of nuclear effects on accelerator-based neutrino-oscillation physics", seminar at CEA, Saclay, France.
16. July 2017: (*Seminar*) "Impact of nuclear effects on accelerator-based neutrino-oscillation physics", seminar at Ghent University, Ghent, Belgium.
15. ** July 2017: (*Invited Talk*) "Study of argon and titanium nucleus at JLab and its impact on liquid argon based neutrino experiments", International Workshop on (e,e'p) Processes, Bled, Slovenia.
14. June 2017: (*Seminar*) "Impact of nuclear effects on accelerator-based neutrino-oscillation physics", Doctoral Training Program on Microscopic Theories of Nuclear Structure, Dynamics and Electroweak Currents, ECT*, Trento, Italy.
13. April 2017: (*Collaboration Meeting*) "What can we learn from electron scattering for neutrino scattering", MicroBooNE collaboration meeting, Fermilab, Batavia, Illinois, USA.
12. Dec 2016: (*Seminar*) "Neutrino interactions around quasielastic peak: What would theorists do?", MicroBooNE cross sections working group meeting, Fermilab, Batavia, Illinois, USA.
11. July 2016: (*Seminar*) "Modeling electron- and neutrino-nucleus scattering in kinematics relevant for accelerator-based neutrino-oscillation experiments", Particle Physics Seminar, Brookhaven National Laboratory, Upton, New York, USA.
10. ** July 2016: (*Invited Review Talk*) "A review on recent theoretical developments in neutrino interaction modeling at the quasielastic peak", NuTune2016, Workshop on Global Fits to Neutrino Scattering Data and Generator Tuning, University of Liverpool, England.
9. ** April 2016: (*Invited Talk*) "Low energy excitations to quasielastic scattering", Two-body current contributions in neutrino-nucleus scattering, ESNT, CEA Saclay, France.
8. May 2015: (*Conference*) "Quasielastic neutrino-nucleus scatterings at intermediate energies", BriX workshop, University of Liège, Liège, Belgium.
7. May 2015: (*Conference*) "Modeling quasielastic neutrino-nucleus scatterings in few-GeV region", Annual scientific meeting of the Belgian Physical Society, University of Liège, Liège, Belgium.
6. ** August 2014: (*Invited Talk*) "Quasielastic neutrino-nucleus scattering within a continuum random phase approximation approach", NUFAC2014, XVIth International Workshop on Neutrino Factories and Future Neutrino Facilities, Glasgow, Scotland.
5. October 2013: (*Seminar*) "Charged-current quasielastic neutrino-nucleus scattering for accelerator-based neutrino oscillation experiments", Fens inside-out (journal club), Ghent University, Ghent, Belgium.
4. March 2013: (*Conference*) "Modeling quasielastic neutrino-nucleus scattering at intermediate energies", Annual Brix-IAP workshop, Oostende, Belgium.
3. April 2010: (*Seminar*) "Neutrino masses in type IIB compactification on a Swiss-Cheese Calabi-Yau framework", seminar at Indian Institute of Technology (IIT) Roorkee, India.
2. March 2010: (*Seminar*) "Structures of proton rich nuclei", seminar at Indian Institute of Technology (IIT) Roorkee, India.
1. July 2009: (*Seminar*) "Stimulated Raman scattering studies in one dimensional Mott-Hubbard systems", seminar at Raja Ramanna Centre for Advanced Technology, Indore, India.

Posters

6. July 2020: "Nuclear Structure Physics in Coherent Elastic Neutrino-Nucleus Scattering", Neutrino 2020, The XXIX International Conference on Neutrino Physics and Astrophysics, Chicago, Illinois, USA [Virtual].
 5. August 2017: "Recent study of argon and titanium nucleus at Jefferson Lab", New Extensions of Coherent scattering and other Lepton Interactions for new Physics Searches (ν Eclipse), University of Tennessee, Knoxville, Tennessee, USA.
 4. May 2016: "Modeling neutrino-nucleus scatterings for accelerator-based neutrino-oscillation experiments", Annual scientific meeting of the Belgian Physical Society, Ghent University, Ghent, Belgium.
 3. May 2014: "Inclusive quasielastic scattering in a CRPA approach", NuInt 14, 9th International Workshop on Neutrino-Nucleus Interactions in the Few-GeV Region, London, UK.
 2. May 2014: "CCQE contribution to (anti)neutrino-nucleus scatterings", NuInt 14, 9th International Workshop on Neutrino-Nucleus Interactions in the Few-GeV Region, London, UK.
 1. March 2014: "Modeling quasielastic neutrino-nucleus scattering for accelerator-based neutrino oscillation experiments", PhD Symposium, Ghent University, Belgium.
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