

CONTACT INFORMATION	300 Washington Ave. Washington College Chestertown, MD 21620 Phone: (+1) 410 778 7732 Email: sshrestha3@washcoll.edu Website: <a href="https://theshresthalab.github.io">https://theshresthalab.github.io</a>	
POSITIONS	Assistant Professor of Physics, Washington College Adjunct Assistant Professor of Physics, The Ohio State University Postdoctoral Researcher, CERN & The Ohio State University Research Assistant, CERN & Iowa State University	2022 - Present 2022 - Present 2014 - 2021 2011 - 2014
EDUCATION	<b>Iowa State University</b> , Ames, IA Ph.D., Experimental Particle Physics, July 2014 <b>Grinnell College</b> , Grinnell, IA B.A., Physics, May 2006 <b>Massachusetts Institute of Technology</b> , Cambridge, MA Professional Certification, Applied Data Science, Sep. 2023	
EXTERNAL GRANTS	International Particle Physics Outreach Education Grant, CERN National Science Foundation US-ATLAS Education Grant, USA International Centre for Theoretical Physics Education Grant, Italy National Science Foundation US-ATLAS Outreach Grant, USA International Centre for Theoretical Physics Course Dev. Grant, Italy National Science Foundation US-ATLAS Outreach Grant, USA International Centre for Theoretical Physics Outreach Grant, Italy National Science Foundation US-ATLAS Outreach Grant, USA Science & Technology Facilities Council Travel Grant, UK CERN International Relations Workshop Organization Grant, CERN International Centre for Theoretical Physics Outreach Grant, Italy CERN & International Centre for Theoretical Physics Travel Grant, CERN & Italy CERN & International Centre for Theoretical Physics Outreach Grant, CERN & Italy	2023 2023 2023 2022 2020 2019 2019 2018 2018 2017 2016 2015 2014
INTERNAL GRANTS	Cromwell Fellowship for Course Development John S. Toll Fellowship Awards (continuous support since 2020) Phi Beta Kappa Reception Grant William James Forum Fund Faculty Travel Award Cater Seminar Grant Faculty Enhancement Fund Faculty Travel Award	AY 2023-25 2020-Present Fall 2023 Fall 2023 Fall 2023 Fall 2023 Summer 2023 Spring 2023
HONORS/AWARDS	Grinnell College Alumni Award, Grinnell College Physics Mentor Award, The Ohio State University Graduate College Teaching Excellence Award, Iowa State University Richard G. Patrick Outstanding Teaching Award, Iowa State University Outstanding First Year Teaching Award, Iowa State University H. George Apostle Outstanding Senior Award in Physics, Grinnell College First runner-up, Iowa Collegiate Mathematics Competition International Merit Scholarship, Grinnell College	2023 2021 2009 2009 2008 2006 2005 2003

SELECTED  
PEER-REVIEWED  
PUBLICATIONS

I am a member of the ATLAS collaboration, which publishes about 100 papers each year. To many of these, I contribute through data-taking operations, trigger performance studies, detector calibration and simulation, and executing other responsibilities such as group coordination and student supervision. I appear as an author on all these publications, resulting in some 100 papers each year which bear my name, and since 2022, which also bear Washington College's name as my home institution. However, below is a list of publications where I have made significant contributions.

"Search for Higgs boson pair production in the final state with 2  $b$ -quarks, 2 charged leptons, and missing transverse energy at  $\sqrt{s} = 13$  TeV with the ATLAS detector," ATLAS Collaboration, Submitted to Journal of High Energy Physics, preprint at arXiv:2310.11286 (2023).

"Configuration and performance of the ATLAS b-jet triggers in Run 2," ATLAS Collaboration, European Physical Journal **C81**, 1087 (2021).

"Search for a heavy Higgs boson decaying into a Z boson and another heavy Higgs boson in the  $\ell\ell b\bar{b}$  and  $\ell\ell WW$  final states in  $pp$  collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector," ATLAS Collaboration, European Physics Journal **C81** 396 (2021).

"Combination of searches for Higgs boson pairs in  $pp$  collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector," ATLAS Collaboration, Physics Letter **B800** 135103 (2020).

"Search for Higgs boson pair production in the dileptonic  $WWb\bar{b}$  channel in  $pp$  collisions at  $\sqrt{s} = 13$  TeV," ATLAS Collaboration, Physic Letter **B801** 135145 (2020).

"Search for Higgs boson pair production in the  $b\bar{b}WW^*$  final state at  $\sqrt{s} = 13$  TeV with the ATLAS detector," ATLAS Collaboration, JHEP **04** 092 (2019).

"Search for Higgs boson pair production in the  $WW^{(*)}WW^{(*)}$  decay channel using ATLAS data recorded at  $\sqrt{s} = 13$  TeV," ATLAS Collaboration, JHEP **05** 124 (2019).

"Search for pair production of vector-like top quarks in events with one lepton, jets, and missing transverse momentum in  $\sqrt{s} = 13$  TeV  $pp$  collisions with the ATLAS detector," ATLAS Collaboration, JHEP **08** 052 (2017).

"Measurement of the material of the ATLAS Inner Detector using Run-2 data from the LHC," ATLAS Collaboration, Journal of Instrumentation **12** P12009 (2017).

"Charged-particle distributions in  $\sqrt{s} = 13$  TeV  $pp$  interactions measured with the ATLAS detector at the LHC," ATLAS Collaboration, Physics Letter **B758** 67 (2016).

"Search for pair production of new heavy quarks that decay into a  $W$  boson and a light quark in  $pp$  collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector," ATLAS Collaboration, Phys. Rev. **D92** 112007 (2015).

SELECTED ATLAS  
PUBLIC NOTES

Conference papers and other documents published by ATLAS are subject to a high level of peer-review within the collaboration. These are the notes in which I have made major contributions.

"Measurement of the ATLAS b-jet trigger efficiency in 2017 data," ATL-COM-DAQ-2019-077

"Search for pair production of vector-like top partners in events with one lepton and an invisibly decaying Z boson at  $\sqrt{s} = 13$  TeV  $pp$  collisions at the ATLAS detector," ATLAS-CONF-2017-015.

"Search for pair production of vector-like top partners in events with exactly one lepton, at least four jets and large missing transverse momentum," ATLAS-CONF-2016-101.

"Studies of the ATLAS ID material using  $\sqrt{s} = 13$  TeV data," ATL-PHYS-PUB-2015-050.

"Charged-particle distributions in  $\sqrt{s} = 13$  TeV  $pp$  interactions measured with the ATLAS detector at the LHC," ATLAS-CONF-2015-028.

SELECTED  
NON-ATLAS  
PUBLICATION

"High Energy Physics in Africa, Latin America and other developing regions," Assamagan et. al, preprint on arXiv:2308.15373v1 (2023).

"Higgs boson potential at colliders: Status and perspectives," Di Micco et. al, Reviews in Physics **5** 100045 (2020).

"Search for 4th Generation Quarks with the ATLAS Detector at the LHC," S. Shrestha, AIP Conference Proceeding, 1560 (2013)

COLLOQUIA AND  
SEMINARS

- “Unraveling the mysteries of the universe at LHC,” Public Talk, St. Xavier’s College, Nepal, 2023
- “Unraveling the mysteries of the universe at LHC,” Public Talk, Deerwalk Sifal School, Nepal, 2023
- “Higgs at 10! Ten years of measurements of the most recently discovered elementary particle,” Physics Colloquium, Tribhuvan University, Nepal 2022
- “Unraveling the mysteries of the universe one particle at a time ,” Physics Colloquium, The College of the Holy Cross, MA 2020 (virtual)
- “Higgs Boson as a tool in the search for new physics,” Physics Seminar, Washington College, 2020
- “Final Test of the Standard Model,” High Energy physics Seminar, Ohio State University, OH, 2020
- “Higgs boson as a probe in the search for new physics,” Colloquium, Marietta College, OH, 2020
- “Higgs boson as a probe in the search for new physics,” Physics Seminar, University of Sussex, 2019
- “Higgs boson as a tool to discover new physics,” Physics Seminar, Grinnell College, Iowa, 2018
- “Arresting God particle in Kathmandu,” Public Seminar, Oxford University, UK, 2018
- “Pushing the Frontiers of Knowledge at CERN’s LHC,” Colloquium, St. Olaf College, MN, 2017
- “Borders and their human impacts colloquium series: Science without borders at CERN,” Public Colloquium, Washington and Lee University, Lexington, VA, 2017
- “Search for pair production and rare decay of the Higgs boson with the ATLAS detector,” High Energy Physics Seminar, Iowa State University, Ames, IA, 2017
- “Higgs Boson as a probe in the search for physics beyond the Standard Model,” High Energy Physics Seminar, The Ohio State University, Columbus, OH, 2017
- “Pushing the frontiers of knowledge at CERN,” Public Talk, United States Edu. Fund, Nepal, 2017
- “Taking high energy physics to higher altitudes,” Public Seminar, ETH Zurich, 2017
- “Voyage to the heart of matter,” Public Colloquium, Kathmandu University, Nepal, 2016
- “Search for new heavy quarks at ATLAS,” University of Maryland, College Park, MD, 2014
- “Search for a heavy, vector-like top-quarks,” University of Texas-Dallas, 2014

INVITED TALKS IN  
CONFERENCES &  
WORKSHOPS

- “Career in physics,” BCVPSIN School, Kathmandu University, Nepal, 2023 (virtual)
- “Latest Di-Higgs results from ATLAS,” American Physical Society Meeting, Minneapolis, 2023
- “Taking high energy physics to higher altitudes,” Association of Nepali Physicists in America Conference, 2020 (virtual)
- “ATLAS results on Di-Higgs,” Higgs Hunting, Orsay-Paris, France, 2019
- “Overview of ATLAS results on Di-Higgs search,” Di-Higgs Workshop, Göttingen, Germany, 2019
- “B-tagging trigger signature for Run3,” Trigger Workshop 2019, Elba, Italy, 2019
- “Status and prospect of Run2 Di-Higgs analyses in  $bbWW$  and  $WWWW$  channels,” DBL-HBSM Workshop, Annecy, France, 2017
- “Search for rare and exotic Higgs boson decay modes and Higgs boson pair production with the ATLAS detector,” ICNFP2017, Crete, Greece, 2017
- “Prospects for the search of Higgs boson pair production in  $pp$  collisions at  $\sqrt{s} = 13$  TeV With the ATLAS detector,” HH Orsay Workshop, Orsay, France, 2016
- “Analysis of events with  $b$ -jets and a pair of leptons of the same charge in  $pp$  collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector,” PASCOS 2015, Trieste, Italy, 2015
- “Understanding material distribution in the ATLAS inner detector with Run2 data,” ATLAS Tracking Plenary, CERN, Switzerland, 2015
- “Search for new heavy quarks that decay into a  $W$  boson and a light quark,” U.S. ATLAS Workshop, Chicago, 2013
- “Search for new heavy quarks that decay into a  $W$  boson and a light quark,” ATLAS Physics and Performance Week, CERN, 2013
- “Search for new heavy quarks at ATLAS,” CIPANP 2012, St. Petersburg, FL, 2012
- “Measurement of  $W$  boson helicity in top quark decay,” APS Prairie, Iowa, 2009

**Principal Investigator: The Shrestha Lab, Washington College** 2022 - Present  
I lead the particle physics group at WAC which consists of myself and students on 3 different fronts of particle physics research: theoretical, experimental, and computational. On computational front, I have trained several students on ATLAS data analysis. On experimental front, I have developed a hands-on particle physics lab for undergraduate students. In addition, students collaborate with other researchers at CERN, thereby gaining significant global exposure and experience. Since 2022, WAC has become an associate member of the ATLAS collaboration at CERN, which gives WAC students access to both data and supercomputing resources at CERN. Currently, I collaborate with faculty, students, and postdocs from Ohio State and UI-UC.

**Lead Analyser, Analysis Coordinator & Contact Editor: HH 1-lepton** 2015 - Present  
I was a lead analyser, analysis coordinator, and contact editor of an analysis that searched for pair produced Higgs bosons in  $bbWW$  final state. I led a team of 20 researchers from 7 institutes to publish the result in the Journal of High Energy Physics ( **JHEP 04 092 (2019)**). This is the first result from ATLAS in  $bbWW$  channel. This channel was previously deemed too challenging because of large background, and had not been tackled. My work demonstrated that the backgrounds can be controlled, and this channel could be a potential new way to study the Di-Higgs process. The second and improved iteration of this analysis with 5 times more data is currently under ATLAS collaboration review for submission to peer-reviewed journal.

**Lead Analyser & Analysis Coordinator: HH 2-lepton** 2017 - Present  
Building on the success of the 1-lepton channel mentioned above, I initiated the effort to include the 2-lepton channel. The analysis targeting only the non-resonant SM Higgs pair production in the  $bbl\ell + MET$  final state was published in Physical Letter B (**Phys. Lett. B 801 135145 (2020)**), in which I demonstrated a great improvement in sensitivity, compared to the first iteration in the 1-lepton channel, to the signal by employing deep neural networks. Following the above publication, I initiated the second iteration of this analysis with sensitivity to larger class of signals. In the second iteration, I supervised several students, both undergraduate and graduate, to complete the analysis with much improved sensitivity. The manuscript was submitted to the Journal of High Energy Physics in October 2023 with pre-print available on **arXiv:2310.11286 (2023)**.

**Lead Analyser, Coordinator, & Contact Editor:  $b$ -jet trigger performance** 2017 - Present  
I led the study of the  $b$ -jet trigger performance in Run2 LHC data, deriving data-based correction to simulated studies. I was also selected the group co-coordinator to manage a team of about 30 researchers from 17 institutes. The work was published in European Physical Journal (**Eur. Phys. J. C 81 (2021) 1087**). Based on my extensive contribution, I was selected to be the contact editor (equivalent of corresponding author in smaller collaborative papers) of the published paper. I continue to supervise a graduate student from Ohio State on the calibration of the  $b$ -jet trigger.

**Data Quality Monitoring in the ATLAS Control Room** 2012 - 2016  
I monitored the performance of different sub-systems of the ATLAS detector and the luminosity infrastructure, identified any potential problem, and coordinated among system shifters, ensuring high-quality data for the ATLAS experiment. Data taken during this period have resulted in several highly cited publications, among them the measurements of the Higgs boson properties.

**Lead Analyser: Detector Simulation** 2015 - 2017  
I developed the framework for mapping the material distribution in the ATLAS detector using secondary hadronic interactions. This result, published in the Journal of Instrumentation (**JINST 11 11020 (2017)**) significantly improved the uncertainties associated with tracking.

**Lead Analyser: Charged-particle multiplicities in the ATLAS detector** 2015 - 2016  
As a lead analyser of the analysis that measured the charged-particle multiplicity in proton-proton collisions, I validated simulated sample and measured the systematic uncertainty on the tracking efficiency. The paper is published in **Phys. Lett. B 758 67 (2016)**.

**Lead Analyser, Analysis Coordinator & Contact Editor: VLQ Analysis** 2013 - 2015  
I was a lead analyser, analysis coordinator, and contact editor of an analysis that searched for pair produced vector-like quarks in the  $Hq/Zq/Wq$  final states. Leading a team of 8 researchers from 3 institutes, I improved the previous limit on the mass of the new particle by 350 GeV, and also produced the first result on the mass of a VLQ in the two dimensional plane of  $\text{BR}(Q \rightarrow Wq)$  versus  $\text{BR}(Q \rightarrow Hq)$ . The analysis was published in **Phys. Rev. D** **92**, 112007 (2015).

**Likelihood-based kinematic fitting package** 2013 - 2017  
I developed a likelihood-based kinematic fitter for reconstruction of top-quark events. I also defined a log likelihood ratio discriminant that distinguishes new, heavy quarks from the main background, top-quarks. In 2017, I supervised a student to derive transfer functions at a higher center-of-mass energy for a kinematic fitting package, extensively used to reconstruct top-quark events in ATLAS.

**Data Production and Validation** 2009 - 2011  
I produced simplified format for both simulated and actual proton-proton collision data. I significantly expanded the prototype data validation package, and validated the official data-making software. I investigated codes across different groups and documented the data content for the entire collaboration of 3000 physicists. This work was critical in my qualification as an author of the ATLAS collaboration's Higgs boson discovery, which resulted in the Nobel Prize in Physics in 2013.

#### LEADERSHIP

***De facto* National Contact: Nepal @ CERN** 2013 - Present  
I worked with the Ministry of Science and the Ministry of Foreign Affairs to accomplish the signing of International Cooperation Agreement with CERN. I coordinated the actions between CERN and researchers from Nepal and contributed to the grant proposal submitted to the European Commission. I continue to work with CERN Education and Outreach to recruit students and teachers from Nepal for training programs. A total of 10 high school teachers and 12 undergraduates from Nepal have been trained at CERN.

**Organizer: Supercomputing Workshop, Kathmandu University** October 2019  
I organized a high performance computing workshop at Kathmandu University with 3 guest scientists from CERN and several local scientists.

**Convener: Di-Higgs Kickoff Workshop, CERN** February 2019  
As a chair of the Di-Higgs search session, I prepared the agenda, invited the speakers, led the discussion, and prepared the summary of the session. As a result, 6 distinct analyses were launched targeting distinct topologies. These analyses have either been published or are expected to be published soon.

**Convener: HH Production at Colliders Workshop, Fermilab** September 2018  
As a convener of the  $bbVV$  session, I prepared the agenda, invited the speakers, led the discussion, and prepared the summary of the session. Subsequently, I edited a chapter of the workshop white paper, which was published in the journal **Reviews in Physics** **5** 100045 (2020).

**Organizer: SAHEPI Workshop** June 2017  
I organized the first South Asian High Energy Physics Instrumentation (SAHEPI) Workshop. This was the first of a series of workshops to be held across South Asia to strengthen the region's ties with CERN. Following the workshop, I led a partnership with CERN to establish a high performance computing facility at Kathmandu University, the first of its kind in Nepal.

STUDENT  
SUPERVISION

I have immensely enjoyed working with students. In a big collaboration such as ATLAS, there are several self-contained and well-defined projects to which students can make significant contributions. Below is a list of select students I have supervised and links to their research reports (where appropriate). All of these works have contributed to papers we have published, or will publish.

- Mr. Jason Ikenaga, REU 2022/2023/2024 (Washington College)
- Ms. Rano Marufova, REU 2023 (Washington College)
- Ms. Eniya Jaber, REU 2022 (Washington College)
- Mr. Tapas Kumar, REU 2022/2023 (Washington College)
- Mr. Xiang Zhang, REU 2021 (Ohio State University) (PhD student at University of Virginia)
- Mr. Jacob Borison, REU 2021 (Ohio State University)
- Ms. Shiksha Pandey, CERN Summer 2021 (Bryn-Mawr College) (PhD student at Penn State)
- Mr. Dmitriy Zubov, CERN Summer 2021 (National University of Nuclear Research, Russia)
- Mr. Pratik Kafle, REU 2020 and 2021 (Reed College) (PhD student at Michigan State)
- Ms. Sneha V. Dixit, REU 2021/2022/2023 (WAC) (PhD student at Uni of Nebraska, Lincoln)
- Mr. Peyton Stewart, REU 2020 (Washington College) (PhD student at Clemson University)
- Ms. Rasmita Timalsina, CERN Summer 2020 (PhD student at Catholic Uni of America)
- Mr. Zhenyu Wu, REU 2019 (Ohio State University) (PhD student at University of Virginia)
- Mr. Chaosong Chen, REU 2019 (PhD student at Pennsylvania State University)
- Ms. Caeley Pittman, CERN Summer 2019, Report Link (PhD student at Boston University.)
- Mr. Roshan Joshi, CERN Summer 2019, Report Link (PhD student at Ohio State University)
- Ms. Rami D. KC, CERN Student 2018, Report Link (M.Sc. at St. Xavier's College, Nepal)
- Ms. Jessica Sydnor, CERN Student 2018, Report Link (PhD student at W. Virginia Uni.)
- Mr. Anthony Ciavarella, REU 2017, Thesis Link (PhD student at University of Washington)
- Ms. Kalpanie L., CERN Summer 2017, Report Link (PhD, Uni. of Ruhuna, Sri Lanka)
- Ms. Stephanie Fouts, REU 2016 (graduated from Washington & Lee University)
- Mr. Mahesh Thakuri, CERN Student 2016, Report Link (PhD student at OK State Uni.)
- Mr. Santosh Parajuli, CERN Student 2015, Report Link. (Postdoc at UI-Urbana Champaign)

In addition, I have also supervised the works of several Ph.D. students during their stay at CERN. Below is a list of select Ph.D. students whose research I have supervised.

- Mr. Roshan Joshi, PhD candidate at Ohio State University. Mr. Joshi and his supervisor are my collaborators.
- Dr. Santosh Parajuli, PhD from Southern Methodist University. I served on Mr. Parajuli's thesis committee. He is currently a postdoc at UI-UC, and is my present collaborator.
- Dr. Benjamin Tannenwald, PhD from Ohio State (Senior Data Scientist at AstraZeneca)
- Dr. Nurfikri N., PhD from University of Oxford (Professor at University of Malaya, Malaysia)
- Dr. John Myers, PhD from University of Oregon (Data Scientist in Oregon)
- Dr. Giovanni Bartolini, PhD from CPPM, France (Research Scientist in Italian company)

SELECT WAC  
STUDENT TALKS

- Trigger studies for Di-Higgs Search at the Large Hadron Collider, Sneha V. Dixit '23, US-ATLAS National Symposium, August 2023
- Higgs Boson as a Tool for Search for New Laws of physics at CERN's Large Hadron Collider, Eniya Jaber '23 and Tapas Kumar '24, AstroPhilly22 Conference, Villanova Uni, 2022
- Background modeling in the search for Di-Higgs with the ATLAS detector, Peyton Stewart '21, John S. Toll Presentations, March 2021
- Background modeling in the search for Di-Higgs with the ATLAS detector, Peyton Stewart '21, ATLAS Di-Higgs Meeting, Nov. 2020

SELECT WAC  
STUDENT POSTERS

- Developing particle physics lab for undergraduate curriculum, Tapas Kumar '24, Fall Family Weekend Poster Session, Oct 2023
- Classification of signal and background in search for Di-Higgs Boson at Large Hadron Collider, Rano Marufova '23, Fall Family Weekend Poster Session, Oct 2023
- Higgs Boson as a Tool for Search for New Laws of physics at CERN's Large Hadron Collider, Eniya Jaber '23 and Tapas Kumar '24, Fall Family Weekend Poster Session, Oct 2022
- Modeling top-quark in the search for Di-Higgs Search at the Large Hadron Collider, Sneha V. Dixit '23, Fall Family Weekend Poster Session, Oct 2021

EDUCATION AND  
OUTREACH

**Organizer: BCVSPIN Particle Physics School, Kathmandu University** May 2023

I organized a two-week long summer school in particle physics and cosmology in Kathmandu in May 2023. The school, BCVSPIN, was originally conceived by Nobel laureate Abdus Salam, and aims to inspire the next generation of scientists in Asia. Several successful editions of the school have been held since 1989, traditionally supported by the local institutions and International Center for Theoretical Physics (Trieste, Italy). In 2023, we secured grants from The Bartol Institute (Uni of Delaware), NSF-funded US-ATLAS program, ICTP, IPPOG, and in-kind contribution from the local universities. The funding made it possible to fully sponsor 64 participating students. As part of the program, I gave a talk titled Career in Physics, and served on the panel for the discussion that followed.

**Organizer: Particle Physics Winter School, Kathmandu University** December 2018

I organized a Particle Physics Winter School in Nepal in partnership with ICTP (Italy) and US ATLAS Outreach Program of the National Science Foundation (USA). I gave lectures on particle physics to undergraduate students, and led hands-on session to analyse LHC data. I discussed career choices for physics students and reviewed their resumes.

**Coordinator: Particle Physics @ CERN, Washington & Lee University** 2016 - 2018

As the coordinator for the CERN visit of the spring term particle physics course given at Washington & Lee University, I prepared the visit agenda, gave lectures, invited guest lecturers from various CERN experiments, and moderated scientific and career-related discussions for students.

**Organizer: Physics Without Frontiers-Nepal** 2014 - 2016

I organized the first (2014-15) and second (2015-16) Physics Without Frontiers programs in Nepal in partnership with ICTP (Italy) and CERN. I gave lectures on particle physics and led hands-on session to analyse LHC data. I also moderated a video conference with scientists in the ATLAS Control Room, and discussed career choices for physics students and reviewed resumes. As part of the program, I visited high schools in rural Nepal, engaged the general public by screening the movie, Particle Fever, and served on the panel discussing the importance of basic science.

**Particle Physics Masterclass** 2013 - 2016

I moderated video conference from CERN to high schools across the world within the framework of the International Particle Physics Masterclass program. I led the student discussion on the hands-on analysis of LHC data that the students carried out, and discussed career options for physics majors.

SERVICE TO  
COMMUNITY

<b>Member:</b> Washington College International Education Committee	July 2023 - Present
<b>Member:</b> Global Education Office Director Search Committee	Sep 2023 - Present
<b>Co-Coordinator:</b> Screening of Particle Fever movie and Panel Discussion	Spring 2024
<b>Coordinator:</b> William James Forum Bio/BioChem Seminar	Spring 2024
<b>Co-Coordinator:</b> Gibson-Wagner Computational Neuroscience Seminar	Spring 2023
<b>Advisor:</b> Washington College Society of Physics Students	2022 - Present
<b>PI/Advisor:</b> Washington College Cater Society Outreach in India	Dec. 2022
<b>Panelist:</b> US-ATLAS Education and Outreach Program, Cal State Uni, East Bay	Oct. 2022
<b>Voluntary Supervisor:</b> Independent Research by WAC student Peyton Stewart	Fall 2020

**Referee:** *Journal of Instrumentation (JINST)* 2017 - Present  
I review manuscripts on instrumentation in high energy and medical physics.

**Editorial Board Member: Vector-Like Quark Search** 2018 - 2021  
I was the editorial board chair of an ATLAS analysis that searched for heavy Higgs boson in the  $b\bar{b}l\bar{l}$  and  $l\bar{l}W$  final states, in a peer-reviewed paper, **Euro. Phys. Journal C 81 396 (2021)**.

**Member: HPC Steering Committee, Kathmandu University** 2019 - 2021  
I served on the high performance computing (HPC) steering committee, which drafted the directives and usage policy for the computing facility for university-wide use. I also coordinated between the experts at CERN and the local team to maintain and operate the HPC facility.

**Panelist: Roadmap for Sustainable Development, EPFL, Switzerland** August 2017  
I presented a case for the need to invest in basic science for sustainable development and the immediate need to establish a high performance computing facility in Nepal in order to digitize, collect, preserve, and analyse data on all fronts so as to inform policy-making.

**Editorial Board Member: Vector-Like Quark Search** 2016 - 2017  
I was an editorial board member of an ATLAS analysis that searched for vector-like quark in the  $ZtX$  final state, resulting in 2 conference papers and 1 peer-reviewed paper, **JHEP 08 052 (2017)**.

PUBLIC  
ARTICLES/  
INTERVIEWS

- Washington College Becomes Member of International ATLAS Collaboration
  - <https://www.washcoll.edu/live/news/atlas-collaboration.php>
- Physicists work to bring more undergrads into research
  - <https://www.symmetrymagazine.org/article/physicists-work-to-bring-more-undergrads-into-research>
- Voice of America Science Edition: CERN's Large Hadron Collider
  - <https://www.voaafrica.com/a/6659770.html>
- The Internship Must Go On
  - <https://www.washcoll.edu/stories/peyton-stewart.php>
- Sharing CERN with Nepal, Symmetry Magazine
  - <https://www.symmetrymagazine.org/article/sharing-cern-with-nepal>
- A Career in Quantum Physics, Sujhaab Chautaari
  - <https://chautaari.com/career-quantum-physics>
- Physics Diplomacy, ICTP News
  - <https://www.ictp.it/about-ictp/media-centre/news/2016/2/physicswithoutfrontiersnepal.aspx>
- Representatives from CERN to Visit W&L, The Columns
  - <https://columns.wlu.edu/representatives-from-the-european-organization-for-nuclear-research-to-visit-wl>