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Employment & positions:

- State University of NY (SUNY) Distinguished Professor (2021-present)
- Founding Director, Center for Frontiers in Nuclear Science (2017-Present)
- Director, Electron Ion Collider Science, Brookhaven National Lab (2017-present)
- Professor, Stony Brook University (2013-2020)
- Director of Undergraduate Studies, Physics & Astronomy (2009-2014)
- Associate Professor with Tenure, Stony Brook University (2008-2012)
- RIKEN-BNL Senior Fellow and Spin Physics Group Leader (2008-2016)
- Assistant Professor & RIKEN Fellow Stony Brook University (2004-2007)
- RIKEN BNL Research Center Fellow (2000-2003)
- Associate Research Scientist & Postdoctoral fellow, Yale University (1995-1999)

Education

- Ph. D. Experimental High Energy Physics, Yale University (1994)
- M.Sc. Physics, Indian Institute of Technology (IIT), Kanpur, India (1987)
- B. Sc. Physics, University of Bombay (1985)

Interests/Research:

- Quantum Chromodynamics (QCD): QCD (structure of visible matter), nucleon spin
- Precision Electro-Weak (EW) & Beyond the Standard Model (BSM) physics
- Science Communication and innovation in teaching
- Diversity, Equity and Inclusivity; Under Representative Minorities (URMs) in Science

Honors, Awards, Fellowships and honorary Positions

- Member of the State University of New York, Distinguished Academy (2021)
- Fellow of the American Association for Advancement of Sciences (AAAS) (2021)
- Distinguished Alumnus Award (DAA) Indian Institute of Technology, K., India (2021)
- SUNY Chancellor's Award for Excellence Research & Innovation (2018)
- Founding Chair, The Electron Ion Collider (EIC) Users Group (2016-2017)
- Principle Contact & Organizer of activities for Electron Ion Collider (1999-2016)
- RIKEN (Japan) President's Special Prize for the Study of Nucleon Spin (2015)
- Fellow of the American Physical Society (2014)
- National Academy of Science's Education Fellow in Life Sciences (2013)
- Sr. Fellow & Group Leader of the RIKEN BNL Research Center (spin) (2008-2017)
- Visiting Lecturer, TIFR (2014/5 & 2018/9, IIT Bombay & Kanpur 2012/3 & 2018/9)
- Visiting Lecturer, University of Adelaide, Australia (2014/15)
- Dept. of Physics & Astronomy @ SBU, Meritorious Faculty Award (2005, 07, 09)
- Fellow, RIKEN-BNL Research Center @ Brookhaven National Lab (2000-2007)
- Visiting Fellowship, Japanese Society of Promotion of Science (JSPS)(1998)
- Gibbs Medal (Valedictorian) University of Bombay (1985)

Author of ~450+ publications

- InSpire: h-index ~110

- ~ 10 reviews (2 in progress) and edited scientific volumes

Other:

- 500+ colloquia, seminars & invited (& public) talks at international conferences
- Organized 150+ national and international Workshops, and conferences including APS Women in Science (North-East Chapter), Minority Serving Institution students to participate in Research at national labs and universities.
- Int. Advisory Committees of Int. meetings Laboratories, Research Centers (20+)
- 30+ University, College of Science & Departmental Committees at Stony Brook
- 30+ Ph.D. Defense committees departments at Stony Brook
- External reviewer for Columbia, Kyoto & Tokyo University Ph.D. theses
- Reviewer for US (DoE, NSF), UK, French grants and prize funding agencies
- Reviewer for US (PRL, PRD, PRC, Nature), European (EPJC) & Asian (Pramana) Journals

Project Director and Principal Investigator (PI) of Grants and the Group

- DOE Nuclear Physics (Medium Energy) Grant (2005-Present, ~\$7M)
 - 10+ postdoctoral fellows, 10+ graduate, 75+ undergraduate researchers
- BNL LDRD/PDs (\$6M+) for R&D, Electron Ion Collider (2001-present)
- Simons Foundation Award \$5M (2018-2028) for Center for Frontiers in Nuclear Science

Scientific Collaboration, Leadership & Initiatives in Scientific Collaborations

- Founding Director of the Center for Frontiers in Nuclear Science (CFNS) (2017-present)
- Edward Bouchet Initiative for URMs at CFNS (2021)
- ATHENA EIC Detector: Founding Executive Committee Member (2021-present)
- EIC Science Director & Advisor to BNL Management on EIC matters (2017-present)
- The EIC-HERA Initiative @ CFNS: H1 & ZEUS Collaboration at DESY (2020-present)
- US EIC Users Group, Founding Chair of Steering Committee of (2016/17)
- EIC Project and Science: Initiator, contact person/spokesperson (1999-2016)
- PREX/CREX, MOLLER & SoLID Collaborations @Jefferson Laboratory, (2014-present)
- PHENIX Detector Collaboration at BNL (2000-Present) (Physics WG Convener, Run-Coordinator, Member of the Executive Committee)
- IP12 Local Polarimetry Collaboration (at BNL: 1999-2002, Spokesperson)
- ZEUS Collaboration (at DESY: 1998-2003, Spin Physics & Polarimetry WG Coordinator)
- Spin Muon Collaboration (SMC at CERN: 1994-2000, Physics WG Convener, Polarized Target Group Leader)
- E851 Collaboration (at BNL: 1989-1994, Lead Ph.D. student)

Affiliations and Positions in the National & International Organizations/Committees

- Co-Chair, CFNS Summer School for graduate students and post docs on EIC physics (2019-present)
- Scientific Advisory Committee, RAPID2021: Advanced Radiation Detector & Instrumentation in Nuclear and Particle Physics Experiments
- Chair Line (2021-2024) APS April meeting
- Chair of the DIS2020/DIS2021 International Workshop on Deep Inelastic Scattering and related subjects, March 2020 & April 2021; Member of the DIS International Advisory Committee (IAC)
- Chair Line (2019, 2021, 2023) Electromagnetic Interactions with Nucleons and Nuclei (vice Chair, EINN2019, Chair, EINN2021, and past Chair, EINN2023)
- International Advisory Board of Jet/X-SCAPE Project for Jets@EIC (2020-present)
- International Advisory Board of HEP-USQCD Project (2020-present)

- International Advisory Committees: *Partial List*: MENU (2015-now), HiX (2015-now), Strong QCD (2020-present)
- Program Committee, APS/JPS Joint Meeting, Hawaii, US, October 2018
- Chair, Symposium on the promotion of Minority Undergraduate Student Research at BNL (2017)
- Special advisor, Director of RIKEN BNL Research Center (2017-2019)
- Advisory Committee for US National Nuclear Physics School, NNPSS (2016-2019)
- Nuclear Science Advisory Committee (NSAC, 2014-2017)
- American Physical Society, Fellow Selection Committee (2016-2017)
- The NSAC Long Range Planning (LRP) Committee (2006-2007, 2014-2015)
- Chair, APS Conference of Undergraduate Women in Physics (N.E. Corridor), 2014
- Life Member, American Association for Advancement of Science (2005-present)
- Life Member, American Physical Society (2005-present)
- APS, Division of Nuclear Physics, Program Committee (2005-2008)
- RHIC AGS Users Executive Council (Member: 2005-2008, Chair: 2008-2010)

Timeline: Scientific milestones & contributions

1991-1999 as Graduate Student & postdoctoral fellow

- Ph.D. @ Yale/BNL: Rare Kaon and pion decays measured at BNL. First measurements of $\pi^0 \rightarrow e^+e^-$ (BR: 10^{-8}) and the form factor for flavor changing neutral current via $K^+ \rightarrow \pi^+ e^+ e^-$ (BR: 10^{-7}). Suppressed the ongoing discussions about beyond-the-Standard Model (BSM) possibilities in these decays.
- Associate Research Fellow @ Yale/CERN: Led the SMC polarized target group and then physics working group including the 1st global NLO-QCD analysis of world-data set by an experimental collaboration. Established the quark spin in nucleon is small (25%) and pointed to *gluons* as the potential missing component of the nucleon spin.
- Driven by the above results, joined ZEUS. Helped initiate & contributed to the polarized HERA workshops (1996-1999) at DESY and **led 1st exploratory workshops** for eRHIC (Electron Ion Collider/EIC) 1999/2000 at BNL & Yale.
- First presentation & discussion on eRHIC in the NSAC Long Range Plan 2022

2000-2007 RIKEN Fellow and Junior faculty at Stony Brook

- R&D and commissioning of RHIC polarimeter. Discovery of the principle of RHIC – Local Polarimetry & built two for PHENIX. Proof of principle measurement of double longitudinal asymmetry in π^0 's at RHIC.
- First high-luminosity measurement non-zero asymmetry in neutral pions from 2006 & 2009 datasets and their interpretation for gluon's contribution to the proton from the RHIC spin program.
- Introduced the eRHIC/EIC science in US/World NP community with principal collaborators (R. Milner, P. Paul, G. Garvey): Led the NSAC EIC White Papers & presented EIC at the 2002 & 2007 NSAC LRP. First major eRHIC/EIC publication: Ann. Rev. of Nucl. & Part. Science 2005.
- Coordinated world-wide EIC effort at the NSAC LRP 2007 with BNL & JLab leadership (and R. Milner & R. Ent) which established EIC in the LRP2007 as an "initiative" for the future.

2008-2016 Tenured faculty at Stony Brook

- 1st measurement of $W^{+/-}$ at RHIC with e^+/e^- (& recently final μ^+/μ^- data Run 13); and continued high precision measurements of polarized gluons with π^0 's and photons. (with SBU & PHENIX students).

- Led the Electron Ion Collider through the NSAC LRP 2015. Organized the EIC White paper, Chief Editor, with J. Qiu & Z.-E. Meziani, EPJA 52 (2016) 9, 268. Presented EIC at LRP2015 and helped EIC get NSAC support. Established the EIC Users Group 2016 (& its 1st Chair).
- Initiated the SBU's QCD/Spin group's migration from (only) RHIC/Spin activities to Jefferson Lab (PREX2, CREX, MOLLER & SoLID experiment)

2017-Present Faculty at Stony Brook & Center for Frontiers in Nuclear Science

- As Chair of the EICUG Steering Committee organized, steered [EIC through the National Academy Review](#) including presentation of the EIC to the NAS review committee.
- Established SBU research into the spin & parity QCD experiments at Jefferson Lab while continuing research at RHIC/PHENIX (MOLLER, SoLID and PREX-2/CREX).
- Precision e-polarimetry & physics analysis resulted in a PRL on PREX2: A measurement of neutron skin depth in Lead-208 (Pb) nucleus, which has deep implications to the structure of neutron star: <https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.126.172502>; Recently a measurement on Calcium-48 nucleus led to another PRL.
- Funded by NY State (\$1.3M) and the Simons Foundation (\$5M), setup *Center for Frontiers in Nuclear Science (CFNS)* to support young scientists to work on EIC & related science. Created post doc positions 10 at BNL/SBU and ~7/year jointly with national and international universities and research labs. As of December-2022 ~17 postdoc graduated to tenure track or tenured faculty or staff scientist positions including some prestigious (named) fellowships at US, European and Asian Labs.
- CFNS has evolved in to a highly active Center for high-energy QCD physics for EIC and related science with ~80+ publications and about 12 workshops per year.
- Launched the **Edward Bouchet Initiative** for **under-represented minority (URM)** students in high-energy QCD at senior undergraduate and graduate school at SBU with 3 national labs & 5 research universities and 7 minority serving institutions (MSI's). Launched a visitor support for Latin American University researchers.
 - NSF Supported IANN-QCD program for Networking in Americas for QCD/EIC.
 - Some positions seeded by CFNS but seeking support from DOE & NSF (\$3.5M).
 - The undergraduate research part of this initiative supported through DOE grant (co-PI, MI Chiu of BNL, 2021). The first cohort of graduates: 4 (in 2022) joined graduate school at MSU (1), Stony Brook (2) and U of Puerto Rico(1).

Selected publications & reports with A. Deshpande's leadership or significant contributions

Electron Ion Collider:

1. Electron Ion Collider: The Next QCD Frontier: Understanding the Glue that binds us all, A. Accardi et al., Eur. Phys. J. A 52 (2016), e-print: 1212.1701 [nucl-ex]. (1000+ citations)
2. Gluons and Quarks at high energies: Distributions, polarization and tomography, D. Boer et al. e-print : 1108.1713 [nucl-th] (550+ citations)
3. Study of fundamental structure of matter with an electron-ion collider (EIC), A. Deshpande et al., Ann. Rev. Nucl. Part. Sci. 55 (2005) 165-228. (167 citations)
4. Science Requirements and Detector Concepts for the Electron-Ion Collider, EIC Yellow Report, BNL-220-990-2021-FORE, JLAB-PHY-21-3198, March 2021
5. Electron-Ion Collider at BNL, Conceptual Design Report 2021, J. Adam's et al.

PHENIX Collaboration at BNL and related

6. Double helicity asymmetry in inclusive mid-rapidity pi0 production for polarized p+p collisions at Sqrt(s)=200 GeV, PHENIX Collaboration, S. S. Adler et al., Phys. Rev. Lett. 93 (2004), 202002. (89 citations, 1st measurement at RHIC)

7. Mid-rapidity neutral pion production in proton-proton collisions at $\sqrt{s}=200$ GeV, PHENIX collaboration, S. S. Adler et al., *Phy. Rev. Lett.* 91 (2003) 241803. (384 citations)
8. Inclusive cross section and double helicity asymmetry for π^0 production in p+p collisions at $\sqrt{s}=200$ GeV: implications for the polarized gluon distribution in proton; PHENIX Collaboration, A. Adare et al., *Phys. Rev. D* 76 (2007) 051106. (267 citations)
9. Measurement of direct photon production in p+p collisions at $\sqrt{s}=200$ GeV, PHENIX collaboration, S. S. Adler et al. *Phy. Rev. Lett.* (2007) 012002. (197 citations)
10. Measurement of parity-violating spin asymmetries in $W^{+/-}$ production at mid-rapidity in longitudinally polarized p+p collisions, PHENIX collaboration, A. Adare et al., *PRD* 93 (2016) 5, 051103 (41 citations)
11. Single transverse spin asymmetry in very forward and very backward neutral particle production for polarized proton collisions at $\sqrt{s}=200$ GeV, A. Bazilevsky, A. Deshpande, B.D. Fox et al., *Phy. Rev. Lett. B* 650 (2007) 325-330. (53 cites)
12. Formation of dense partonic matter in relativistic nucleus-nucleus collisions at RHIC, Experimental evaluation by the PHENIX collaboration; A. Adcox et al. *Nucl. Phys. A* 757 (2005) 184-283, e-print nucle-ex/0410003 [nucle-ex]. (3005 citations)

ZEUS Collaboration at DESY:

13. Measurement of neutral current cross section and F2 structure function for deep inelastic e+p scattering at HERA, ZEUS collaboration, S. Chekanov et al., *Eur. Phys. J. C* 21, (2001) 443-471; e-print hep-ex/0105090 [hep-ex] (561 citations)
14. ZEUS Results on measurement and phenomenology of F2 at low-x and low-Q2, ZEUS Collaboration, *Eur. Phys. J. C* 7 (1999) 609-630. E-print hep-ex/9809005 (367 citations)
15. A ZEUS NLO QCD analysis of data on deep inelastic scattering, ZEUS Collaboration, *PRD* 67, (2003) 012007. (343 citations)
16. Measurement of F2 structure function at very low-Q2 at HERA, ZEUS Collaboration, J. Breitweg et al., *Phys. Lett. B* 487 (2000) 53-73. (271 citations)
17. Measurement of deeply virtual Compton scattering at HERA, ZEUS collaboration, S. Chekanov et al., *Phys. Lett. B* 573 (2003) 46-62. (240 citations)

Spin Muon Collaboration (SMC) at CERN

18. Spin asymmetries (A_1) and structure functions g_1 of the proton and deuteron from polarized high-energy muon scattering, Spin Muon Collaboration, B. Adeva et al. *Phy. Rev. D* 58 (1998) 112001. (447 citations)
19. Spin structure of the proton from polarized inclusive deep inelastic muon-proton scattering, Spin Muon Collaboration, D. Adams et al., *Phy. Rev. D* 56, 5330-5358 (425 citations)
20. A new measurement of spin dependent structure function $g_1(x)$ of the deuteron, Spin Muon Collaboration, D. Adams et al. *Phy. Lett. B* 357 (1995) 248-254. (410 citations)
21. Polarized quark distribution in nucleon from semi-inclusive spin asymmetries, Spin Muon Collaboration, B. Adeva et al., *Phys. Lett. B* 420 (1998) 180-190. (247 citations).
22. Next to Leading Order (NLO) QCD analysis of spin structure function g_1 , Spin Muon Collaboration, B. Adeva et al., *Phys. Rev. D* 58 (1998) 112002, (232 Citations)
23. The spin dependent structure function $g_1(x)$ of deuteron from polarized deep inelastic muon scattering, SMC, D. Adams et al., *Phys. Lett. B* 386 (1997) 228-248 (171 citations)

500+ talks since 1996

Condensed Summary of talks & lectures in the last 5 years: 2018-2023

2018 Total talks: ~25

- Multiple plenary talks on RHIC Spin & EIC at conferences & public talks
- Colloquia at UC Riverside, RPI, Lanzhou, CAPP-KEIST, LBNL, CERN, BNL Sci. Council

- *Summer school lectures* on EIC/QCD at Pohang, South Korea, and Lanzhou, China

2019 Total talks: ~25

- EIC presentations/discussion at the European Strategy Meeting, Grenada.
- Multiple plenary talks on RHIC spin and EIC at conferences
- Colloquia at TIFR, Warsaw, U. Chicago, SBU, FNAL, Tokyo Tech, Syracuse, Cornell U.
- Summer school lectures: GGI (Florence) & US NNPSS U. Tennessee & CFNS (SBU)

2020 Talks ~ 25 (mostly remote due to COVID)

- EIC Presentation at Snowmass2021, Spanish strategic planning meeting, EIC CD review, INFN Planning meeting, AMBER-at-CERN planning meeting
- Multiple plenary talks at: CFNS (EW/BSM@EIC, Pion/Kaon Structure@EIC, INFN, JLab Users Meeting, HQQCD,
- Colloquia & Public talks at IIT Bombay, Universities/Colleges Mumbai, Solapur, India, Temple University, Howard University, CERN, NISER India, BNL-Brownbag lunch for students
- NPR interview “the Science Guy” Bill Nye on EIC Science after EIC site selection

2021 Talks ~25 (all remote)

- Public talks: U. of New Hampshire (National Laboratory Day US DOE), World of Physics at SBU, DOE Pipeline Initiatives for minorities @ FAMU, Finnish Physics Day (Helsinki)
- Other invited talks at varied audiences: in Asia, Europe, US: high-school students, undergraduate students, graduate students, undergraduate & university teachers, QCD experts
- Summer School lectures: US NNPSS 2021, Winter School Indian and Chinese school 2021

2022 Talks ~25 (mostly in-person)

- Invited plenary talk on EIC at INPC2022, Cape Town, SA September 2022; Invited plenary DNP Session Lead talk on EIC, New Orleans, USA October 2022, Invited plenary session talks at EIC-LHC Synergies workshop at CERN/Geneva, July 2022; Invited talk Workshop ECT*/Trento, Italy, July 2022, COMPASS Collaboration Meeting, INPC 2022, , APSNE-UNH, APS Plenary 2022; APCTP at Incheon, South Korea, BARC India, ISER Mohali, India
- Multiple Colloquia on EIC/Science: BNL-Mini Symposium for Undergraduate Students, U. Mass at Amherst, North Carolina State, Rice University, Kansas University, Indiana University; IIT Delhi; NISER Bhubaneshwar, India.
- International Summer School Lectures on experimental QCD and EIC at the CFNS 2022

2023 Talks ~ 20 (all in person)

- Invited Talks: EIC Asia Meeting Seoul, SK; CFNS Workshop on MuIC, EPIC meeting at JLab, INT U of Washington, Epiphany Workshop in Krakow, IIT Bombay, India, African Science Congress, George/South Africa, APS/JPS Joint Meeting, Hawaii, EIC Asia Meeting in Taipei, EINN2023 at Paphos, Cyprus
- Colloquia and public talks: SUNY Geneseo, SUNY Albany, Duke University, U of Maryland, Mississippi State University
- Summer School Lectures: EIC Summer School CFNS; 1st European Summer School on EIC in Italy, US National Nuclear Summer School, U of California, Riverside.