




Faculty Details proforma for DU Web-site

Title	Prof	First Name	KIRTI	Last Name	RANJAN	Photograph
Designation		PROFESSOR				
Address		Room No. 189, 2 nd Floor, Multistoreyed building, Department of Physics & Astrophysics, University of Delhi				
Phone No	Office	91-11-27667036				
	Residence					
	Mobile					
Email		Kirti.Ranjan@cern.ch , kirtiranjan@gmail.com , kranjan@physics.du.ac.in				
Web-Page						
Educational Qualifications						
Degree		Institution			Year	
Ph.D.		University of Delhi			1998-2003	
M.Sc. Physics		University of Delhi			1996-1998	
B.Sc.(H) Physics		University of Delhi			1993-1996	
Career Profile						
Organisation / Institution		Designation	Duration	Role		
Department of Physics and Astrophysics, University of Delhi, Delhi – 7.		Professor	May 2013 – onwards	Teaching and research in Experimental High Energy Physics/Accelerator physics		
Department of Physics and Astrophysics, University of Delhi, Delhi – 7.		Associate Professor	May 2010 – May 2013	Teaching and research in Experimental High Energy Physics/Accelerator physics		
Department of Physics and Astrophysics, University of Delhi, Delhi – 7.		Reader	May 2007 – May 2010	Teaching and research in Experimental High Energy Physics/Accelerator physics		
FermiLab, Batavia, U.S.		Associate Scientist	8 months (Sep. 2006 – April 2007)	Understand beam dynamics issues in proposed International Linear Collider (ILC) Project, and I have been actively involved in the DØ Experiment		
FermiLab, Batavia, U.S.		Guest Scientist	Oct. 2003 to Aug. 2006	Involved in two major International Experimental High Energy Physics programs: proposed International Linear Collider (ILC) Project & DØ Experiment		
Administrative Assignments						
<ul style="list-style-type: none"> • Director, Centre for Detector and Related Software Technology, Department of Physics and Astrophysics, University of Delhi, Delhi – 110007, since July 2010. • Officer on Special Duty (OSD), Admissions of the University of Delhi for the academic year 2016-17. • Member of the Admission Advisory Committee, University of Delhi, for academic year 2018-19. • Member of the Admission Committee, University of Delhi, for academic year 2017-18. • Co-coordinator, M.Tech. Nuclear Science and Technology, Department of Physics, DU, since 2008 (till operational). • Member of the Governing Body, Kirori Mal College, Sept 2016 – Sept. 2018. Treasurer and Building Committee Convenor. • Project Leader of University of Delhi Group in the CMS Experiment at the Large Hadron Collider, CERN, Switzerland. • Coordinator (joint), Internal Quality Assurance Cell (IQAC) of the DU; since 13th April 2018 						

- Member of the India-CERN Task force, constituted by DAE-DST Coordination committee held on 25th May 2017.

Areas of Interest / Specialization

Experimental high energy physics/Accelerator Physics

Subjects Taught

- Postgraduate:
 - Theory courses in M.Sc. (Physics): Nuclear and Particle Physics, Quantum Mechanics I, Statistical Mechanics, Mathematical Physics (All Core Courses) and Advanced Numerical Techniques;
 - Laboratory courses in M.Sc. (Physics): M.Sc. (Previous) Nuclear Physics Laboratory, Computer Programming (Core Course);
 - M.Tech. Nuclear Science and Technology: Accelerator Physics and Technology
- Ph.D. Course Work: Statistics and Computer Applications

Time table of the subjects taught during the current semester

S.No.	Subject	Days	Time	Classroom
1	M.Sc. (Prev) Nuclear Physics Core Lab	Thu	9am – 1 pm	Nuclear Physics FF Lab
2	M.Sc. (Prev) Nuclear Physics Core Lab	Fri	9am – 1 pm	Nuclear Physics FF Lab
3.	Mathematical Physics	Mon, Tue, Wed	11:15 hrs -12:15pm	DSKL

Research Guidance

Sr. No.	Title of theses	Status	Name of the student & current status
1	Beam dynamics Studies and the Design, Fabrication and Testing of Superconducting Radiofrequency cavity for High Intensity Proton Accelerator (2007)	Awarded (2013)	Mr. Arun Saini (Associate Scientist at Fermilab, US)
2	Search for the Standard Model Higgs boson in Di-electron plus missing transverse energy final states at $\sqrt{s}=1.96$ TeV with D0 experiment (2007)	Awarded (2014)	Ms. Ruchika Nayyar (Postdoc at Univ. of Arizona, US after Ph.D.)
3	Characteristics of Silicon Detectors and Study of large PT particle Production at Collider Energies (2008)	Awarded (2015)	Ms. Pooja Saxena (Postdoc at DESY, Germany after Ph.D.)
4	Search for the SM Higgs Boson in the $H \rightarrow ZZ \rightarrow ee(\mu\mu)\nu\nu$ channel in the CMS Experiment at the LHC (2009)	Awarded (2015)	Mr. Arun Kumar (Postdoc at National Taiwan University, Taiwan after Ph.D.)
5	Search for the SM Higgs boson in the $H \rightarrow WW \rightarrow l\nu jj$ decay mode and Measurement of WW Production Rate in Vector Boson Fusion Topology in the CMS Experiment at the LHC (2010)	Awarded (2016)	Mr. Ajay Kumar (Adhoc teacher in Sri Aurobindo College, D.U.)
6	Study of some aspects of High momentum transfer processes in the CMS Experiment at the LHC, CERN (2013)	Submitted (2019)	Mr. Sumit Keshri
7.	Test of the Standard Model and possible Searches for Physics beyond the Standard Model (2014)	Submitted (2019)	Ms. Priyanka Phogat
8.	Development of silicon sensors for particle detection in high energy physics experiments (2016)	Ongoing	Mr. Chakresh Jain
9.	Study of Standard Model processes and search for Beyond Standard	Ongoing	Ms. Saumya

Publications Profile

Total Published papers in International peer reviewed Journals: More than 1100

h-index: 97

Scopus Author Profile Link:

<https://www.scopus.com/authid/detail.uri?origin=resultslist&authorId=35227864000&zone=>

List of 10 most significant publications.

1. "Development of AC-coupled, poly-silicon biased, p-on-n silicon strip detectors in India for HEP experiments", Geetika Jain, Ranjeet Dalal, Ashutosh Bhardwaj, Kirti Ranjan, Alexander Dierlamm, Frank Hartmann, Robert Eber, Marcel Demarteau, Nuclear Instruments and Methods in Physics Section Research A (NIM-A), Volume 882, 21 February 2018, Pages 1-10.
2. "Radiation tolerance study on irradiated AC-coupled, poly-silicon biased, p-on-n silicon strip sensors developed in India", Geetika Jain, Chakresh Jain, Ashutosh Bhardwaj, Kirti Ranjan, Alexander Dierlamm, Frank Hartmann, Marcel Demarteau, Nuclear Instruments and Methods in Physics Research Section A (NIM-A), Volume 913, 2019, Pages 97-102.
3. "Combined effect of bulk and surface damage on strip insulation properties of proton irradiated n+-p- Si strip sensors", Ranjeet Dalal, A. Bhardwaj, K. Ranjan, Michael Moll and Anna Elliott-Peisert, Journal of Instrumentation (JINST), (2014), 9, P04007.
4. "TCAD simulation of Low Gain Avalanche Detectors", Ranjeet Dalal, G. Jain, A. Bhardwaj, K. Ranjan, Nuclear Instruments and Methods in Physics Research Section A (NIM-A), Volume 836, 2016, Pages 113-121.
5. "Search for a new scalar resonance decaying to a pair of Z bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV", by CMS Collaboration, A. M. Sirunyan, ...K. Ranjan et al., Journal of High Energy Physics 06 (2018) 127 [CMS Internal documents: CMS-HIG-17-012. corresponding to CMS AN-2016/325. Thesis work of one Ph.D. student.]
6. "Search for a standard-model-like Higgs boson with a mass in the range 145 to 1000 GeV at the LHC", by CMS Collaboration, S. Chatrchyan, K. Ranjan et al, European. Physics Journal C, 73 (2013) 2469 [CMS Internal documents: CMS-HIG-12-034, CERN-PH-EP-2013-050 corresponding to CMS AN-2012/138 and CMS-HIG-13-031, CMS PAS HIG-13-027 and CMS AN-2012/463. Thesis work of two Ph.D. students.]
7. "Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC", S. Chatrchyan,...Kirti Ranjan, Physics Letters B, Volume 716, Issue 1, 17 September 2012, Pages 30-61
8. "Superconducting RF cavity design study for the squeezed ILC section of the high intensity H- linac for the Project-X facility", Arun Saini, K. Ranjan, A. Lunin, S. C. Mishra, N. Perunov, N. Solyak, V. P. Yakovlev, Supercond. Sci. Technol. 25 025024 (2012) [downloaded 250 times in 15 days from the date of publication. Across all IOP journals 10% of articles were accessed over 250 times in that quarter.]
9. "Search for Higgs Boson Production in Oppositely Charged Dilepton and Missing Energy Events in pp Collisions at $\sqrt{s} = 1.96$ TeV", by D0 Collaboration (V.M. Abazov...K.Ranjan et al.), Phys. Rev. D 86, 032010 (2012). [Thesis work of one Ph.D. student]
10. "Measurement of the production cross section for single top quarks in association with W bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV", by CMS Collaboration (A. M. Sirunyan, ...K.Ranjan et al.), Journal of High Energy Physics 10 (2018) 117. [CMS Internal documents: CMS-TOP-17-018. corresponding to CMS AN-2017/113. Thesis work of one Ph.D. student]

Publications in the Last one year

https://inspirehep.net/search?ln=en&ln=en&p=find+a+ranjan%2Ck+and+type+P+and+da+2018-04-01+-%3E+2019-03-31&of=hcv&action_search=Search&sf=earliestdate&so=d&rm=&rg=250&sc=0

1) [Search for a low-mass \$\tau^+\tau^-\$ resonance in association with a bottom quark in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1903.10228 [hep-ex]].

[10.1007/JHEP05\(2019\)210](https://arxiv.org/abs/10.1007/JHEP05(2019)210).

JHEP 1905 (2019) 210.

2) [Search for supersymmetry in final states with photons and missing transverse momentum in proton-proton collisions at 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1903.07070 [hep-ex]].

[10.1007/JHEP06\(2019\)143](https://arxiv.org/abs/10.1007/JHEP06(2019)143).

JHEP 1906 (2019) 143.

3) [Performance of missing transverse momentum reconstruction in proton-proton collisions at \$\sqrt{s}=13\$ TeV using the CMS detector.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1903.06078 [hep-ex]].

[10.1088/1748-0221/14/07/P07004](https://arxiv.org/abs/10.1088/1748-0221/14/07/P07004).

JINST 14 (2019) no.07, P07004.

4) [Search for charged Higgs bosons in the \$H^{\pm}\(\mu\)\tau^{\pm}\nu_{\tau}\$ decay channel in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1903.04560 [hep-ex]].

[10.1007/JHEP07\(2019\)142](https://arxiv.org/abs/10.1007/JHEP07(2019)142).

JHEP 1907 (2019) 142.

5) [An embedding technique to determine \$\tau\tau\$ backgrounds in proton-proton collision data.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1903.01216 [hep-ex]].

[10.1088/1748-0221/14/06/P06032](https://arxiv.org/abs/10.1088/1748-0221/14/06/P06032).

JINST 14 (2019) no.06, P06032.

6) [Search for a heavy pseudoscalar boson decaying to a Z and a Higgs boson at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1903.00941 [hep-ex]].

[10.1140/epjc/s10052-019-7058-z](https://arxiv.org/abs/10.1140/epjc/s10052-019-7058-z).

Eur.Phys.J. C79 (2019) no.7, 564.

7) [Combinations of single-top-quark production cross-section measurements and \$|f_{\tau}|\$ determinations at \$\sqrt{s}=7\$ and 8 TeV with the ATLAS and CMS experiments](#)
[Combinations of single-top-quark production cross-section measurements and \$|f_{\tau}|\$ determinations at \$\sqrt{s}=7\$ and 8 TeV with the ATLAS and CMS experiments.](#)

By ATLAS and CMS Collaborations (Morad Aaboud et al.).

[arXiv:1902.07158 [hep-ex]].

[10.1007/JHEP05\(2019\)088](https://arxiv.org/abs/10.1007/JHEP05(2019)088).

JHEP 1905 (2019) 088.

8) [Measurement of exclusive \$\rho\(770\)^0\$ photoproduction in ultraperipheral pPb collisions at \$\sqrt{s_{NN}}=5.02\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1902.01339 [hep-ex]].

[10.1140/epjc/s10052-019-7202-9](https://arxiv.org/abs/10.1140/epjc/s10052-019-7202-9).

Eur.Phys.J. C79 (2019) no.8, 702.

9) [Observation of Two Excited \$B_s^{*+}\$ States and Measurement of the \$B_s^{*+}\$ Mass in pp Collisions at \$\sqrt{s}=13\$](#)

[TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1902.00571 [hep-ex]].

[10.1103/PhysRevLett.122.132001.](#)

Phys.Rev.Lett. 122 (2019) no.13, 132001.

10) [Search for \$W\$ boson decays to three charged pions.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.11201 [hep-ex]].

[10.1103/PhysRevLett.122.151802.](#)

Phys.Rev.Lett. 122 (2019) no.15, 151802.

11) [Search for supersymmetry in events with a photon, jets, \$b\$ -jets, and missing transverse momentum in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.06726 [hep-ex]].

[10.1140/epjc/s10052-019-6926-x](#), [10.1016/epjc/s10052-019-6926-x](#).

Eur.Phys.J. C79 (2019) no.5, 444.

12) [Measurement of electroweak \$WZ\$ boson production and search for new physics in \$WZ\$ + two jets events in pp collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.04060 [hep-ex]].

[10.1016/j.physletb.2019.05.042.](#)

Phys.Lett. B795 (2019) 281-307.

13) [Measurements of the pp \$WZ\$ inclusive and differential production cross section and constraints on charged anomalous triple gauge couplings at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.03428 [hep-ex]].

[10.1007/JHEP04\(2019\)122.](#)

JHEP 1904 (2019) 122.

14) [Single-Top Quark Production at CMS.](#)

By CMS Collaboration (Priyanka et al.).

[10.3390/universe5010019.](#)

Universe 5 (2019) no.1, 19.

15) [Search for dark matter produced in association with a single top quark or a top quark pair in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.01553 [hep-ex]].

[10.1007/JHEP03\(2019\)141.](#)

JHEP 1903 (2019) 141.

16) [Search for the pair production of light top squarks in the \$e^+p \rightarrow \mu^+mp\$ final state in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.01288 [hep-ex]].

[10.1007/JHEP03\(2019\)101.](#)

JHEP 1903 (2019) 101.

17) [Measurements of the Higgs boson width and anomalous \$HVV\$ couplings from on-shell and off-shell production in the four-lepton final state.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1901.00174 [hep-ex]].

[10.1103/PhysRevD.99.112003.](#)

Phys.Rev. D99 (2019) no.11, 112003.

18) [Measurement of the top quark mass in the all-jets final state at \$\sqrt{s} = 13\$ TeV and combination with the lepton+jets channel.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.10534 [hep-ex]].

[10.1140/epjc/s10052-019-6788-2](https://arxiv.org/abs/1812.10534).

Eur.Phys.J. C79 (2019) no.4, 313.

19) [Measurement of the \$\overline{t\bar{t}}\$ production cross section, the top quark mass, and the strong coupling constant using dilepton events in pp collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.10505 [hep-ex]].

[10.1140/epjc/s10052-019-6863-8](https://arxiv.org/abs/1812.10505).

Eur.Phys.J. C79 (2019) no.5, 368.

20) [Search for contact interactions and large extra dimensions in the dilepton mass spectra from proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.10443 [hep-ex]].

[10.1007/JHEP04\(2019\)114](https://arxiv.org/abs/1812.10443).

JHEP 1904 (2019) 114.

21) [Search for vector-like quarks in events with two oppositely charged leptons and jets in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.09768 [hep-ex]].

[10.1140/epjc/s10052-019-6855-8](https://arxiv.org/abs/1812.09768).

Eur.Phys.J. C79 (2019) no.4, 364.

22) [Search for a heavy resonance decaying to a top quark and a vector-like top quark in the lepton+jets final state in pp collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.06489 [hep-ex]].

[10.1140/epjc/s10052-019-6688-5](https://arxiv.org/abs/1812.06489).

Eur.Phys.J. C79 (2019) no.3, 208.

23) [Measurement and interpretation of differential cross sections for Higgs boson production at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.06504 [hep-ex]].

[10.1016/j.physletb.2019.03.059](https://arxiv.org/abs/1812.06504).

Phys.Lett. B792 (2019) 369-396.

24) [Inclusive search for supersymmetry in pp collisions at \$\sqrt{s} = 13\$ TeV using razor variables and boosted object identification in zero and one lepton final states.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.06302 [hep-ex]].

[10.1007/JHEP03\(2019\)031](https://arxiv.org/abs/1812.06302).

JHEP 1903 (2019) 031.

25) [Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state with two muons and two b quarks in pp collisions at 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.06359 [hep-ex]].

[10.1016/j.physletb.2019.06.021](https://arxiv.org/abs/1812.06359).

Phys.Lett. B795 (2019) 398-423.

26) [Observation of Single Top Quark Production in Association with a \$Z\$ Boson in Proton-Proton Collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.05900 [hep-ex]].

[10.1103/PhysRevLett.122.132003](https://arxiv.org/abs/1812.05900).

Phys.Rev.Lett. 122 (2019) no.13, 132003.

27) [Measurement of the energy density as a function of pseudorapidity in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.04095 [hep-ex]].

[10.1140/epjc/s10052-019-6861-x](https://arxiv.org/abs/10.1140/epjc/s10052-019-6861-x).

Eur.Phys.J. C79 (2019) no.5, 391.

28) [Search for supersymmetry in events with a photon, a lepton, and missing transverse momentum in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.04066 [hep-ex]].

[10.1007/JHEP01\(2019\)154](https://arxiv.org/abs/10.1007/JHEP01(2019)154).

JHEP 1901 (2019) 154.

29) [Measurement of inclusive very forward jet cross sections in proton-lead collisions at \$\sqrt{s_{NN}} = 5.02\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.01691 [hep-ex]].

[10.1007/JHEP05\(2019\)043](https://arxiv.org/abs/10.1007/JHEP05(2019)043).

JHEP 1905 (2019) 043.

30) [A search for pair production of new light bosons decaying into muons in proton-proton collisions at 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1812.00380 [hep-ex]].

[10.1016/j.physletb.2019.07.013](https://arxiv.org/abs/10.1016/j.physletb.2019.07.013).

Phys.Lett. B796 (2019) 131-154.

31) [Measurement of associated production of a W boson and a charm quark in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.10021 [hep-ex]].

[10.1140/epjc/s10052-019-6752-1](https://arxiv.org/abs/10.1140/epjc/s10052-019-6752-1).

Eur.Phys.J. C79 (2019) no.3, 269.

32) [Search for dark matter in events with a leptoquark and missing transverse momentum in proton-proton collisions at 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.10151 [hep-ex]].

[10.1016/j.physletb.2019.05.046](https://arxiv.org/abs/10.1016/j.physletb.2019.05.046).

Phys.Lett. B795 (2019) 76-99.

33) [Search for resonant production of second-generation sleptons with same-sign dimuon events in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.09760 [hep-ex]].

[10.1140/epjc/s10052-019-6800-x](https://arxiv.org/abs/10.1140/epjc/s10052-019-6800-x).

Eur.Phys.J. C79 (2019) no.4, 305.

34) [Search for associated production of a Higgs boson and a single top quark in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.09696 [hep-ex]].

[10.1103/PhysRevD.99.092005](https://arxiv.org/abs/10.1103/PhysRevD.99.092005).

Phys.Rev. D99 (2019) no.9, 092005.

35) [Combination of searches for Higgs boson pair production in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.09689 [hep-ex]].

[10.1103/PhysRevLett.122.121803](https://arxiv.org/abs/10.1103/PhysRevLett.122.121803).

Phys.Rev.Lett. 122 (2019) no.12, 121803.

36) [Search for a standard model-like Higgs boson in the mass range between 70 and 110 GeV in the diphoton final state in proton-proton collisions at \$\sqrt{s} = 8\$ and 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.08459 [hep-ex]].

[10.1016/j.physletb.2019.03.064](https://arxiv.org/abs/1811.08459).

Phys.Lett. B793 (2019) 320-347.

37) [Search for long-lived particles decaying into displaced jets in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.07991 [hep-ex]].

[10.1103/PhysRevD.99.032011](https://arxiv.org/abs/1811.07991).

Phys.Rev. D99 (2019) no.3, 032011.

38) [Search for a \$W'\$ boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.07010 [hep-ex]].

[10.1007/JHEP03\(2019\)127](https://arxiv.org/abs/1811.07010).

JHEP 1903 (2019) 127.

39) [Measurements of \$\overline{t}\$ differential cross sections in proton-proton collisions at \$\sqrt{s}=13\$ TeV using events containing two leptons.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.06625 [hep-ex]].

[10.1007/JHEP02\(2019\)149](https://arxiv.org/abs/1811.06625).

JHEP 1902 (2019) 149.

40) [Search for dark matter produced in association with a Higgs boson decaying to a pair of bottom quarks in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.06562 [hep-ex]].

[10.1140/epjc/s10052-019-6730-7](https://arxiv.org/abs/1811.06562).

Eur.Phys.J. C79 (2019) no.3, 280.

41) [Search for excited leptons in \$\ell\ell\gamma\$ final states in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.03052 [hep-ex]].

[10.1007/JHEP04\(2019\)015](https://arxiv.org/abs/1811.03052).

JHEP 1904 (2019) 015.

42) [Search for pair production of first-generation scalar leptoquarks at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.01197 [hep-ex]].

[10.1103/PhysRevD.99.052002](https://arxiv.org/abs/1811.01197).

Phys.Rev. D99 (2019) no.5, 052002.

43) [Search for heavy neutrinos and third-generation leptoquarks in hadronic states of two \$\tau\$ leptons and two jets in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.00806 [hep-ex]].

[10.1007/JHEP03\(2019\)170](https://arxiv.org/abs/1811.00806).

JHEP 1903 (2019) 170.

44) [Event shape variables measured using multijet final states in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1811.00588 [hep-ex]].

[10.1007/JHEP12\(2018\)117](https://arxiv.org/abs/1811.00588).

JHEP 1812 (2018) 117.

45) [Search for nonresonant Higgs boson pair production in the \$\overline{b}\overline{b}\$ final state at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1810.11854 [hep-ex]].

[10.1007/JHEP04\(2019\)112](https://arxiv.org/abs/1810.11854).

JHEP 1904 (2019) 112.

46) [Search for low-mass resonances decaying into bottom quark-antiquark pairs in proton-proton collisions at \$\sqrt{s} = 13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1810.11822 [hep-ex]].

[10.1103/PhysRevD.99.012005](https://arxiv.org/abs/1810.11822).

Phys.Rev. D99 (2019) no.1, 012005.

47) [Studies of Beauty Suppression via Nonprompt \$D^0\$ Mesons in Pb-Pb Collisions at \$\sqrt{Q^2} = 4 \sqrt{s} \text{ GeV}^2\$.](#)

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[10.1103/PhysRevLett.121.062002.](#)

Phys.Rev.Lett. 121 (2018) no.6, 062002.

119) [Measurement of prompt \$\psi\(2S\)\$ production cross sections in proton-lead and proton-proton collisions at \$\sqrt{s_{\mathrm{NN}}}\$ = 5.02 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1805.02248 [hep-ex]].

[10.1016/j.physletb.2019.01.058.](#)

Phys.Lett. B790 (2019) 509-532.

120) [Measurement of the top quark mass with lepton+jets final states using \$\mathrm{p}\mathrm{p}\$ collisions at \$\sqrt{s}\$ = 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1805.01428 [hep-ex]].

[10.1140/epjc/s10052-018-6332-9.](#)

Eur.Phys.J. C78 (2018) no.11, 891.

121) [Elliptic flow of charm and strange hadrons in high-multiplicity pPb collisions at \$\sqrt{s_{\mathrm{NN}}}\$ = 8.16 TeV.](#)

By CMS Collaboration (A. M. Sirunyan et al.).

[arXiv:1804.09767 [hep-ex]].

[10.1103/PhysRevLett.121.082301.](#)

Phys.Rev.Lett. 121 (2018) no.8, 082301.

122) [Search for disappearing tracks as a signature of new long-lived particles in proton-proton collisions at \$\sqrt{s}\$ = 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1804.07321 [hep-ex]].

[10.1007/JHEP08\(2018\)016.](#)

JHEP 1808 (2018) 016.

123) [Measurement of differential cross sections for Z boson production in association with jets in proton-proton collisions at \$\sqrt{s}\$ = 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1804.05252 [hep-ex]].

[10.1140/epjc/s10052-018-6373-0.](#)

Eur.Phys.J. C78 (2018) no.11, 965.

124) [Performance of the CMS muon detector and muon reconstruction with proton-proton collisions at \$\sqrt{s}\$ = 13 TeV.](#)

By CMS Collaboration (A.M. Sirunyan et al.).

[arXiv:1804.04528 [physics.ins-det]].

[10.1088/1748-0221/13/06/P06015.](#)

JINST 13 (2018) no.06, P06015.

125) [Search for \$\overline{\mathrm{t}}\mathrm{H}\$ production in the \$\mathrm{H}\rightarrow\mathrm{b}\overline{\mathrm{b}}\$ decay channel with leptonic \$\overline{\mathrm{t}}\$ decays in proton-proton collisions at \$\sqrt{s}\$ = 13 TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1804.03682 [hep-ex]].

[10.1007/JHEP03\(2019\)026.](#)

JHEP 1903 (2019) 026.

126) [Measurements of Higgs boson properties in the diphoton decay channel in proton-proton collisions at \$\sqrt{s}\$ = 13 TeV.](#)

By CMS Collaboration (A.M. Sirunyan et al.).

[arXiv:1804.02716 [hep-ex]].

[10.1007/JHEP11\(2018\)185.](#)

JHEP 1811 (2018) 185.

127) [Observation of \$\overline{t}t\$ production.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1804.02610 [hep-ex]].

[10.1103/PhysRevLett.120.231801.](#)

Phys.Rev.Lett. 120 (2018) no.23, 231801.

128) [Search for a new scalar resonance decaying to a pair of Z bosons in proton-proton collisions at \$\sqrt{s}=13\$ TeV.](#)

By CMS Collaboration (Albert M Sirunyan et al.).

[arXiv:1804.01939 [hep-ex]].

[10.1007/JHEP06\(2018\)127](#), [10.1007/JHEP03\(2019\)128](#).

JHEP 1806 (2018) 127, Erratum: JHEP 1903 (2019) 128.

Conference Organization/ Presentations (in the last three years)

Joint Convener of the XXII DAE-BRNS High Energy Physics Symposium 2016, organized by the Department of Physics and Astrophysics, University of Delhi, Delhi, India between 12 – 16 December, 2016.

Research Projects (Major Grants/Research Collaboration)

S.No.	Title of Research Project	PI/ co-PI/ joint PI	Period	Total Grants sanctioned & received (in rupees);	National/ Inter-national ; Name of the Funding Agency
1.	Compact Muon Solenoid (CMS) Upgrade, Operation and Utilization"	PI	31.7.2014 – 31.03.2019	Rs. 9.99 Crore; Revised to 11.73 Crore in 2018	Department of Science and Technology (DST)
2.	Updating and Operation of Regional WLCG Grid System	PI	28.8.2014 – 31.03.2019	Rs. 25.30 Lakhs	Department of Science and Technology (DST)
3.	Accelerators and Detectors for future High Energy Physics Experiments http://www.iusstf.org/cms/newsimages/file/joint-center/Indo-US_JC_Compendum.pdf [Page 206 – 211]	PI	30.4.2010 - 29.4.2012	Rs. 33.79 Lakhs	Indo-US Science & Technology Forum (IUSSTF) Award for supporting Indo-US Joint Networked R&D Centre
4.	Study of New Particles with the CMS Detector at the Large Hadron Collider and Heavy Ion Physics using LHC at CERN – CMS Experiment	Co-PI till 29.4.13 and as PI from 30.4.2013	30.09.2009 - 30.4.2014	Rs. 5.61 crore	Department of Science and Technology (DST)
5.	India LHC Grid Collaboration – Enhancement of Regional World Wide Computing Grid (WLCG)	Co-PI till 29.4.13 and as PI from 30.4.2013	17.03.2010 - 31.03.2014	Rs. 28.57 Lakhs	Department of Science and Technology (DST)
6.	Radiation damage studies of Silicon Sensors	Co-PI	20-09-2012 to 19-09-2014	Rs. 4.08 Laks	Indo-Swiss Joint Research Program (Personnel Exchange Program) by DST
7.	Delhi University R&D Projects	PI	Each year from 2010 to 2015	About 2.3-2.9 Lakhs, each year	National

8.	Simulation studies and tests to develop radiation tolerant silicon detectors for high luminosity colliders	Co-PI	Sanctioned from 20 th April 2017	Rs.26,91,392	Bilateral, Indo-Italy
Awards and Distinctions					
<ul style="list-style-type: none"> • “Excellence Award for In-Service Teachers, Departments” of University of Delhi, for contribution to academic activities, conferred on the occasion of 95th Foundation day of University of Delhi, on 1st May 2017. Sole Awardee under the category for the year 2017, selected from all the 87 Departments and 11 Centers of the University. • Listed as one of the top 10 researchers in the subject area (Physics and Astrophysics) in the International Comparative Performance of India's Research Base (2009-14), published by National Science and Technology Management Information System (NSTMIS), a division of Department of Science and Technology (DST), Govt. of India. http://nstmis-dst.org/PDF/Elsevier.pdf [Table 5.19, Page 106]. Also listed as a co-author in one of the top 10 publications in the Physics and Astrophysics in Table 6.16 [Page 126] • Qualified the Joint National Eligibility Test (NET) held on 21.12.97 and awarded Junior Research Fellowship (JRF) in Physical Science under the CSIR Fellowship Schemes. <ul style="list-style-type: none"> ▪ Junior Research Fellow (JRF), Council of Scientific and Industrial Research, Govt. of India : Nov. 1998 - Oct. 2000. ▪ Senior Research Fellow (SRF), Council of Scientific and Industrial Research, Govt. of India : Nov. 2000 - Feb. 2003. • Qualified Graduate Aptitude Test in Engineering (GATE)-98 held on February 8, 1998 in Physics. Secured All India Rank (AIR): 24 with percentile score of 98.41. • Secured First Position in University of Delhi in M.Sc. Physics in 1998. • Awarded K. S. Krishnan Gold Medal for securing highest marks in University of Delhi in M.Sc. Physics in 1998. • Awarded All India Post Graduate Scholarship on meritorious performance in B.Sc. (Hons.) Physics during the period 1996-98 for pursuing Post Graduate Course. • Secured First Position in Hansraj College in B.Sc. (Hons.) Physics in 1996. • Secured First Position in Govt. Boys Sr. Sec. School No.4, Sarojini Nagar, New Delhi in Delhi Senior School Certificate Examination (DSSCE), 1993 of C.B.S.E. with Distinctions in all subjects. • Awarded Certificate of Merit by CBSE for outstanding academic performance and for being among the top 0.1% of successful candidates of DSSCE, 1993 in English Core. • Secured First Position in Govt. Boys Sr. Sec. School No.4, Sarojini Nagar, New Delhi in Delhi Secondary School Examination (DSSE), 1991 of CBSE. 					
Association With Professional Bodies					
Member of the CMS Collaboration, http://cms.web.cern.ch/content/cms-collaboration					
Member of the RD50 Collaboration, https://rd50.web.cern.ch/rd50/					
Other Activities					
<ul style="list-style-type: none"> • Served as a member in the four-member Internal Analysis Review Committees on important physics topics like High mass H->ZZ->2l2q, Dark Matter and Unparticles, Mono-Z(l) events searches in the CMS Experiment and Top Quark production in dilepton channels in the D0 Experiment. 					

Signature of Faculty Member