

Curriculum Vitae



RAJESH KUMAR

(NBHM-DAE PDF, Ph.D.-Mathematics, CSIR-NET)

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Official Address: Department of Mathematics and Statistics, Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur U.P. India 273009

- **Current Position:**

Assistant Professor, Department of Mathematics and Statistics, DDU Gorakhpur University, Gorakhpur (since April 2018).

- **Previous Position:**

NBHM-DAE Post-Doctoral Fellow (July 01, 2016 to April 28, 2018).

- **Research Association:**

IUCAA (Inter-University Centre for Astronomy and Astrophysics) Associate since August 2023.

- **Scientific Advisor:**

A Scientific advisor of *Vratino Technologies*, Uttar Pradesh India

- **Research Interest:**

Major area: Applied Mathematics

Specialization: Gravitational collapse, Space-time singularity, Black-Hole, Stellar system, Dark energy, Cosmological modelling, Scalar field theory.

- **Research Identifiers:**

Research gate: <https://www.researchgate.net/profile/Rajesh-Kumar-315>

Google Scholar: <https://scholar.google.com/citations?user=FiGq1V8AAAAJ&hl=en&authuser=1>

Orcid: 0000-0002-2582-7245

WOS: <https://www.webofscience.com/wos/author/record/AAC-3126-2020>

- **Research Project (03):**

(1). **Completed** Major Research Project UGC-BSR Start-Up sanctioned by UGC, 2019-2022 (as *Principal Investigator*).

(2). **Completed** Research Project “Research and Development Project, UP Higher Education” 2019-2022 (as *Co-Investigator*).

(3). **Completed** Major Research Project sanctioned by CST-UP, India, 2021-2024 (as *Co-Investigator*).

- **Ph.D. Supervision:** Submitted=02, Ongoing=01

- **Postgraduate Supervision:** 12

- **Awards and Fellowships**

1. IUCAA Associate in August 2023
2. Best Teacher Award for the outstanding contribution in research and teaching given by DDU Gorakhpur University, Gorakhpur in 2022
3. NBHM-DAE Post Doctoral Fellowship in 2016
4. Senior Research Fellowship , CSIR 2012
5. Junior Research Fellowship , CSIR, 2010
6. University Gold Medal (M.Sc. Mathematics), DDU Gorakhpur University, Gorakhpur in 2010.

- **Member of Academic Body:**

1. Life member of Indian Association of General Relativity and Gravitation(IAGRG)
2. Life member of The Tensor Society(JTS)
3. Life Member of National Academic of Mathematics (NAM)
4. Joint Editorial Secretary of The Journal of The Tensor Society(JTS)

- **Reviewer/Referee of Journals:**

1. The European Physical Journal C (Springer)
2. Mathematical Review (American Mathematical Society)
3. Journal of Mathematics (Hindwai)
4. Physica Scripta (IOP Science)
5. Classical Quantum Gravity (IOP Science)

- **Scientific Computations**

MATHEMATICA 13.0, RGTC@ MATHEMATICA, PYTHON

- **Research Articles: 24**

S. N.	Title of paper	Name of the author/s	Name of journal and Publisher	Impact Factor, Indexing and ISSN	Publication details (Vol., Page, doi, etc)
1.	Anisotropic Durgapal-Fuloria compact stars in $f(R)$ gravity	Rajesh Kumar , S. K. Maurya, Abdelghani Errehymy, Abdel-Haleem Abdel-Aty, H. I. Alrebdi, M. Mustafa and Mona Mahmoud	Nuclear Physics B (Elsevier)	IF=2.5 SCI/Scopus ISSN: 1873-1562	Vol 1008, 116690 (2024) https://doi.org/10.1016/j.nuclphysb.2024.116690

2.	A New Perspective on Gravitational Collapse: A Comprehensive Analysis Using Θ Parametrization	Rajesh Kumar , Annu Jaiswal, Sudhir Kumar Srivastava, and S.K. J. Pacif	The European Physical Journal C (Springer Nature)	IF = 4.2, SCI/Scopus ISSN: 1434-6052	Vol 84, 956, (2024) https://doi.org/10.1140/epjc/s10052-024-13335-y
3.	Anisotropic model of stellar objects in modified $f(R)$ Gravity	Rajesh Kumar , S.K. Maurya , Abdelghani Errehymy , Kairat Myrzakulov , Zhanbala Umbetova , V.N. Pat hak	Chinese Journal of Physics(Elsevier)	IF = 4.6, SCI/Scopus ISSN: 2309-9097	92 (2024) https://doi.org/10.1016/j.cjph.2024.08.011
4.	Significance of a quadratically varying deceleration parameter in scalar field-dominated model and cosmic acceleration	Keshav Ram Mishra, Himanshu Chaudhary Rajesh Kumar , Z. Nekouee and S.K.J. Pacif	Modern Physics Letters A (World Scientific press)	IF = 1.5 SCI/Scopus ISSN: 1793-6632	Vol 39, No. 19 & 20 (2024), 2450087 https://dx.doi.org/10.1142/S0217732324500871
5.	RE-EXAMINING BERMAN'S PARAMETRIZATION OF THE HUBBLE PARAMETER IN THE CONTEXT OF LATE-TIME ACCELERATION	K. R. Mishra , R. Kumar , and S. K. J. Pacif	Astrophysics (Springer Nature)	IF = 0.6 SCI/Scopus ISSN: 1573-8191	Vol. 67, No. 2, August, 2024 https://link.springer.com/article/10.1007/s10511-024-09831-4
6.	An Eternal gravitational collapse in $f(R)$ theory of gravity and their astrophysical implications	Annu Jaiswal, Rajesh Kumar , Sudhir Kumar Srivastava, and Megandhren Govender	Chinese Journal of Physics(Elsevier)	IF = 4.6, SCI/Scopus ISSN: 2309-9097	Vol. 89, (2024), Pages 325-339 https://doi.org/10.1016

					/j.cjph.2024.03.010
7.	Physical viability of traversable Finslerian wormholes with traceless fluid under conformal symmetry	Manjunath Malligawad, S. K. Narasimhamurthy, Z. Nekouee, Rajesh Kumar	Submitted to Particle (MDPI)	IF = 1.7 SCI/Scopus ISSN: 2571-712X	https://arxiv.org/abs/2403.03931v1
8.	Traversable wormholes in Finsler geometry under conformal motion	Manjunath Malligawad, S. K. Narasimhamurthy, Z. Nekouee, Rajesh Kumar , Mallikarjun Y. Kumbar	Submitted to Nuclear Physics B (Elsevier)	IF=2.5 SCI/Scopus ISSN: 1873-1562	https://arxiv.org/abs/2401.08498v1
9.	Black hole formation in gravitational collapse and their astrophysical implications	Annu Jaiswal, Rajesh Kumar , Sudhir Kumar Srivastava, Megandhren Govender, and S.K.J. Pacif	Physica Scripta (IOP Science)	IF=2.9 , SCI/Scopus , ISSN: 1402-4896	99: 035307(2024), https://iopscience.iop.org/article/10.1088/1402-4896/ad25cc
10.	Astrophysical implications of an eternal homogeneous gravitational collapse model with a parametrization of expansion scalar	Annu Jaiswal, Rajesh Kumar , Sudhir Kumar Srivastava and S.K.J.Pacif	The European Physical Journal C (Springer Nature)	IF = 4.2, SCI/Scopus , ISSN: 1434-6052	83:490 (2023) https://doi.org/10.1140/epjc/s10052-023-11672-y
11.	Cosmological implications of an interacting model of dark matter & dark energy	Keshav Ram Mishra, S.K.J. Pacif, Rajesh Kumar	Physics of the Dark Universe (Elsevier)	IF = 5.0, SCI/Scopus	Vol. 40, May

		Kumar, Kazuharu Bamba		ISSN: 2212-6864	2023, 101211 https://doi.org/10.1016/j.dark.2023.101211
12.	Dynamics of Uniformly Collapsing System and the Horizon Formation	Annu Jaiswal , Sudhir Kumar Srivastava and Rajesh Kumar	International Journal of Geometric Methods in Modern Physics(<i>world scientific press</i>)	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 20, No. 07, 2350114 (2023), https://doi.org/10.1142/S0219887823501141
13.	Spherically symmetric collapsing star with the background of dark energy	Grishma Verma, Rajesh Kumar and K. R. Mishra	International Journal of Geometric Methods in Modern Physics(<i>world scientific press</i>)	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 19, No. 10, 2250148 (2022) https://doi.org/10.1142/S0219887822501481
14.	A dynamical model of radiating stars and their thermal behavior	Grishma Verma Rajesh Kumar	The European Physical Journal C (Springer Nature)	IF = 4.2, SCI/Scopus , ISSN: 1434-6052	82.6 (2022): 513 https://link.springer.com/article/10.1140/epjc/s10052-022-10473-z
15.	Shear-free gravitational collapse of dust cloud and dark energy	Anjali Pandey, Rajesh Kumar and Sudhir Kumar Srivastava	International Journal of Geometric Methods in Modern Physics(<i>world scientific press</i>)	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 19, No. 06, 2250092 (2022) https://doi.org/10.1142/S021988782250092X

16.	A new class of spherically symmetric gravitational collapse	Rajesh Kumar and Annu Jaiswal	Theoretical and Mathematical Physics (Springer Nature)	IF = 1.0 SCI/Scopus ISSN: 1573-9333	211.1 (2022): 558-566. https://link.springer.com/article/10.1134/S0040577922040092
17.	Dynamics of an Expansion-Free Spherically Symmetric Radiating Star	Rajesh Kumar and Sudhir Kumar Srivastava	Gravitation and Cosmology (Springer Nature)	IF = 1.2 SCI/Scopus ISSN: 1995-0721	27.2 (2021): 163-168. https://link.springer.com/article/10.1134/S0202289321020080
18.	Spherically symmetric self gravitating radiating star under expansion-free motion	Rajesh Kumar and Sudhir Kumar Srivastava	International Journal of Geometric Methods in Modern Physics(<i>world scientific press</i>)	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 17, No. 13, 2050189 (2020) https://doi.org/10.1142/S0219887820501893
19.	Expansion-free self-gravitating dust dissipative fluids	Rajesh Kumar and Sudhir Kumar Srivastava	General Relativity and Gravitation (Springer Nature)	IF = 2.1 SCI/Scopus ISSN: 1572-9532	50, 95 (2018): 1-16. https://link.springer.com/article/10.1007/s10714-018-2416-y
20.	Evolution of Expansion free Spherically Symmetric Selfgravitating Non-dissipative Fluids and some analytical solutions	Rajesh Kumar and Sudhir Kumar Srivastava	International Journal of Geometric Methods in Modern	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 15, No. 04, 1850058 (2018) https://doi.org/10.1142

			Physics(<i>world scientific press</i>)		/S0219887818500585
21.	Anisotropic Bianchi type-V model and the conharmonically Flatness	Rajesh Kumar and Sudhir Kumar Srivastava	Journal of Tensor, Society	0974-5424	10 (2016), pp.9-19 https://doi.org/10.56424/jts.v10i01.10579
22.	On shearing fluids with homogeneous densities	D.C. Srivastava, V.C. Sribastava and Rajesh Kumar	General Relativity and Gravitation (Springer Nature)	IF = 2.1 SCI/Scopus ISSN: 1572-9532	48, 75 (2016): 1-16 https://link.springer.com/article/10.1007/s10714-016-2065-y
23.	Cylindrically Symmetric Relativistic Fluids and the Purely Electric Weyl Tensor	Rajesh Kumar , S.K. Srivastava, V.C. Srivastava	International Journal of Geometric Methods in Modern Physics(<i>world scientific press</i>)	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 12, No. 10, 1550103 (2015) https://doi.org/10.1142/S0219887815501030
24.	Bianchi type VI0 cosmology with purely magnetic and purely electric space time	Rajesh Kumar , S.K. Srivastava	International Journal of Geometric Methods in Modern Physics(<i>world scientific press</i>)	IF = 2.1 SCI/Scopus ISSN: 1793-6977	Vol. 11, No. 05, 1450043 (2014) https://doi.org/10.1142/S0219887814500431
25.	Bianchi type-V cosmological model with purely magnetic solution	Rajesh Kumar , S.K. Srivastava	Astrophysics and Space Science (Springer Nature)	IF = 1.8 SCI/Scopus ISSN: 1572-946X	346, 567-572, (2013) https://link.springer.com/article/10.1007/s1050

					9-013-1481-7
26.	FRW-Cosmological Model for Conharmonically Flat Space Time	Rajesh Kumar, S.K. Srivastava	International Journal of Theoretical Physics (Springer Nature)	IF = 1.3 SCI/Scopus ISSN: 1572-9575	52, 589-595, (2013) https://link.springer.com/article/10.1007/s10773-012-1364-7

- **Conferences/Workshop/Lecture Series/etc Organized: 04**

1. **Organized a** “*Lecture Series on Differential Geometry, General Relativity and Cosmology*” organized by Department of Mathematics & Statistics D.D.U. Gorakhpur University, Gorakhpur on March 14 – 26, 2022 **(as Organizing Secretary)**
2. **Organized a** “*One Week Online short-term course on Research Methodology in Mathematical Sciences*” organized by Department of Mathematics & Statistics D.D.U. Gorakhpur University, Gorakhpur on July 02 – 08, 2021 **(as Organizing Secretary)**.
3. *One week national workshop on Scientific computing with R in Gravitational theory* held 14-19, October 2019 in Department of Mathematics & Statistics D.D.U. Gorakhpur University, Gorakhpur (U.P. India). **(as Organizing Secretary)**.
4. Organized BARC-Outreach Programme (as Co-Convener) in collaboration with BARC, Mumbai and Department of Physics, DDU Gorakhpur University, Gorakhpur, January 16, 2019. **(as Co-Convener)**

- **Delivered Lecture /Paper Presented/ in Conferences/Workshop: 22**

1. **Delivered Lecture in** “*International Conference on Gravitation, Astrophysics and cosmology(ICGAC -2024)*” organized by Centre for Cosmology, Astrophysics and Space science, GLA University Mathura, , India on 14- 16, June 2024 **(as Resource Person)**.
2. **Delivered Lecture in** “*International Conference on Differential Geometry and Relativity(ICDGR) - 2023*” organized by Department of Mathematics, SSJ University Almora, Uttarakhand, India on 18- 20, May 2023 **(as Resource Person)**.
3. **Delivered Lecture in** “*One Week Faculty Development Program on LaTeX and MATLAB- 2023*” organized by Department of Applied Mathematics, G H Rasoni College of Engineering, Nagpur Maharashtra, India on 30th January to 03rd February 2023 **(as Resource Person)**.

4. **Delivered Lecture in** “*Workshop on Scientific Computing in Mathematical Sciences*” organized by Department of Mathematics and Statistics DDU Gorakhpur University, Gorakhpur on March 23-28, 2022 **(as Resource Person)**.
5. **Delivered Lecture in** “*Two Days International Conference on Differential Geometry and its Applications*” jointly organized by Department of Mathematics, Kuvempu University, Shimoga, Karnataka and The Tensor Society, India on March 04-05, 2022 **(as Resource Person)**.
6. **Delivered Lecture in** *International Conference on Differential Geometry and Relativity (ICDGR-2019)* organized by The Tensor Society and Department of Mathematics & Statistics D.D.U. Gorakhpur University, Gorakhpur, U.P. India on 8-10, November 2019**(as Resource Person)**.
7. **Paper Presented** in International Conference on Gravitation, Cosmology and Mathematical Physics organized by GLA University, Mathura, U.P. April, 04-07, 2019.
8. **Paper Presented** in National Conference on Recent Trends in Mathematical Sciences organized by Department of mathematics and statistics, DDU Gorakhpur University, Gorakhpur on November 24-25, 2018.
9. **Paper Presented** in National Conference on Differential Geometry and General Relativity jointly organized by Department of Mathematics, SPU Vallabh Vidyanagar, Gujrat, November 28-29, 2017.
10. **Paper Presented** in National Conference on Differential Geometry and Relativity organized by Department of Mathematics & Statistics, DDU Gorakhpur University, Gorakhpur, January 27-28, 2017.
11. **Paper Presented** in International Conference on Geometry and its Applications (ICGA-2014) organized by The Tensor Society and Department of Mathematics, Jadavpur University, Kolkata, October 16-18, 2014.
12. **Paper Presented** in International Conference on Differential Geometry and Relativity (ICDGR-2013) organized by The Tensor Society and Department of Mathematics & Statistics, DDU Gorakhpur University, Gorakhpur, November 09-11,2013.
13. **Paper Presented** in International Conference on Differential Geometry and Relativity(ICDGR-2012) organized by Department of Mathematics, Aligarh Muslim University, Aligarh, November 20-22, 2012
14. **Paper Presented** in Conference on Recent Trends in Mathematics and Statistics (CORTMAS-2013) organized by Department of Mathematics & Statistics, DDU Gorakhpur University, Gorakhpur, July 27-28, 2013.
15. **Poster Presentation** in First U P Science Congress organized by DDU Gorakhpur University, Gorakhpur, March 02-04,2013
16. **Paper Presented** in 10th National Conference of Indian Society of Mathematics and Mathematical Sciences organized by ISMAMS, Gorakhpur, February 23-24, 2013.
17. **Paper Presented** in Conference on Recent Trends in Mathematics and Statistics (CORTMAS-2012) organized by Department of Mathematics & Statistics, DDU Gorakhpur University, Gorakhpur, March 12-13, 2012.

18. **Paper Presented** in 4th Annual conference of the Tensor society on Applications of Tensor and Differential geometry in Engineering and Physical Sciences organized by SRMGPC Lucknow on October 8-9, 2011
19. **Participated in** Workshop on Computational Techniques of Geometry in Relativity and Allied Topics organized by Department of Mathematics, Aligarh Muslim University, Aligarh; Nov 16-20, 2012.
20. **Participated in** Workshop on Differential Geometry organized by DST-CIMS, Banaras Hindu University, Varanasi, May 02-11, 2011.
21. **Participated in** Instructional Workshop on Differential Geometry organized by Department of Pure Mathematics, University of Kolkata, Jan 15-18, 2011.
22. **Participated in** Advanced Training Programme in Functional Analysis organized by DST-CIMS CIMS Banaras Hindu University, 21 June-3 July, 2010.

- **Administrative Responsibility**

1. IQAC Committee Member since October 2023
2. DRC member, Department of Mathematics and Statistics, DDU Gorakhpur University since 2022.
3. Member of University Science and Research Promotion and Coordination Cell, DDU Gorakhpur University, Gorakhpur since 2021.
4. Member of IPR Committee, DDU Gorakhpur University, Gorakhpur 2019-2023.
5. Member IQAC, DDU Gorakhpur University, Gorakhpur since 2020.
6. Members of Placement and Career counseling Cell, DDU Gorakhpur University, Gorakhpur since 2021.

Academic Qualification		
Ph.D. (Mathematics)	DDU Gorakhpur University, Gorakhpur	2015
M.Sc. (Mathematics)	DDU Gorakhpur University, Gorakhpur	2009
B.Sc.	DDU Gorakhpur University, Gorakhpur	2007
12 th	M. G. Inter College Gorakhpur	2004
10 th	Bhartiya Inter College Pipet Sandi Gorakhpur	2002



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