

Curriculum Vitae

Full Name	Dr. Shankar Lal			
Designation	Professor			
Department	Mathematics (school of science)			
Campus	SRT Campus, Badshahithaul, Tehri			
Address	Department of mathematics, H.N.B. Garhwal University, Campus Badshahithaul, Tehri Garhwal			
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Email	shankar_alm@yahoo.com			
Education Qualification	M.Sc. Maths, I.T., Ph.D., Kumaun University Nainital			
Teaching Experience	19 Years		Research Experience	21 Years
Research Interest and Fields of Specialization				
1. Geometry of Manifolds				
Honours & Awards				
1. Young Scientist Award, at Allahabad University 2005.				
2. Advanced training in Mathematics at KU Campus, Almora 2012. (12 days)				
3. Self-learning course, Understanding open Educational Resources, Commonwealth of learning, Canada.				
Book Published: Discrete Mathematical structures				
Publisher: Ane Publishers and Distributors				
ISBN: 9789349830547				
Extracurricular activity:				
1. Teaching and learning activities among the students, Admission Committee, examination duties and evolution of exam copy.				
2. Member of cultural Judgment committee in 2009-10 and 20010-11.				
3. Organized by me the National conference of the tensor society on development of differential geometry, October 2-3, 2009 at Rishikesh as Joint Secretary.				
4. Judgment of selection committee of cultural programmed in the session 2009-10				
5. Financial committee on infrastructure of the SRT campus.				
6. Participated in the other extra-curricular activity in the Campus as admission committee, examination duties and evolution exam copy.				
Membership of Organization				
1. Life member of the tensor society, University of Lucknow.				
2. Life member of National Academy of Physical sciences, University of Gorakhpur.				
3. Life member of the International Journal of Physical Sciences, University of Allahabad.				
Research Supervision (Ph.D. Degree Awarded)- 03				
Research Projects- NA				
Administrative Experience				
1. Assistant Proctor 2010-2011. 2011-2012, 2013-2014, 2012-2019				
2. Assistant Hostel Warden 2019-20				
3. Deputy Chief Hostel Warden 2020-24				
4. Senior Program Officer NSS 2024 to continued				
5. Anti-Ragging Cell 6. Senior Program officer, NSS				
Scientific Visits Abroad- No				
Conference Organized: As a Joint Secretary, National conference of the tensor society on development of differential geometry, at Rishikesh.				

Awards and Invited Lectures delivered in conferences/seminars:

S. No.	Name of Award	Name of the Academic body/ Association	Year & Place of Award/ Fellowship	National/ International
1.	Best Paper Award	Maa Shakumbhari Trust, Greater Noida	04-05 March, 2023	International

Conference Attended International/National (Presented Paper)

1. Cartesian product of r-GF-structure manifolds, 7th conference of the International Academy of Physical Sciences, organized by Allahabad Univ. Dec.,21-23, **2004**.
2. On Quasi umbilical sumanifold of co-dimension -2-of KH-structure manifold, 8th conference of the International Academy of Physical Sciences, organized by CCS Univ. Meerut, Dec., 29-31, **2005**.
3. Cartesian product of r-Hyperbolic Hermite manifolds, XXXIII Annual conference of the Mathematical society, BHU, Dec., 29-30, **2007**.
4. GF-structure equipped with Nijenhuis tensor, National conference of the tensor society on development of differential geometry, Oct., 2-3, **2009**.
5. Mathematical modeling flow of blood through a vessel, U-cost, 10-12, **Nov., 2010** organized by Doon University.
6. GF-structure motivate the mathematical space, National seminar on interface between statistics, mathematics and allied sciences, 20-22 **Nov., 2010**, organized by Kumaun University, S.S.J. campus, Almora.
7. On GF-structure manifold (Nijenhuis Teensor), National conference on role of mathematical and physical sciences in engineering technology, organized by PG college Karanprayag(Chamoli), **21-22 Octoer, 2011**.
8. Quasi umbilical sumanifold of KH-structure manifold, National conference on role of mathematical and its applications in development of science and technology organized by PG college Jaihrikhal, **21-22 March 2013**.
9. Mathematical Matter of Manifold in Space, national symposium on mind, matter and mathematics:A dialogue organized by HNB Garhwal University Campus Badshahi Thaul, **12-14 March, 2014**.
10. Sustainable development in Fractal Geometry of manifold, National conference on role of mathematics in sustainable development organized by PG college Karanprayag(Chamoli), **17-18 Octoer, 2014**.
11. Geometry of Special metric Solution, National conference on Recent advances in statistical and mathematical sciences and their applications organized by KU SSJ campus, Almora, **04-06 October, 2014**.
12. Sustainable development of fractal image coding on self-similarity, , National conference on Sustainable development of india: Challenges & remedies organized by HNB Garhwal University Campus Badshahi Thaul, **22-23 March, 2014**.
13. Mathematical modelling of geometrical Hazards, National seminar on Geo-environmental hazards and neo-tectonic activities in Himalaya organized by HNB Garhwal University Campus Badshahi Thaul, **28-30 october, 2014**.
14. Mathematical model of population dynamics and growth due to climate change in

- India, International Conference on climate change and disaster risk reduction, Department of Geology, SRT Campus, badshahithaul Tehri Garhwal-UK October 26-28, **2018**.
15. Analysis of some metric solution with geometric form, National conference on advances in Mathematics and its applications, Department of mathematics, M. B. Govt. P. G. College, Haldwani (Nainital)-UK, 17-18 march, **2018**.
 16. Smarandache curves in Euclidean space of parallel transport frame, International conference on advance Physics and Mathematics organized by ASAR Noida, India 22 September, **2019**.
 17. Geometrical structure on manifold and Submanifold and their applications, National conference on Promoting the Advancement of Applied Sciences, organized by Department of Mathematics, HNB, Garhwal University, SRT Campus, badshahithaul Tehri Garhwal-UK, India, October 22-23, **2019**.
 18. Smarandache curves in Euclidean space of parallel transport frame, 26th International conference, International academy of Physical Sciences on advance in topology and differential geometry organized by Guru Ghasidas Vishwavidyalaya, Bilaspur (CG) Dec., 18-20, **2020**.
 19. Geometrical stress tensor of the radiation fluctuations and quantum gravity, third national conference on Radiation Awareness and detection in natural environment (RADNET- III) organized by Department of Physics, SRT Campus, badshahithaul Tehri Garhwal-UK , March 18-20, **2021**.
 20. K-contact metric Sasakian manifold and conformal Tensor, National conference on Integrity of Mathematics in advancement of Science, Technology and management (IMASTM 2021), organized by M.B. P.G. college. Haldwani (Nainital), Uttarakhand, 25- 26 March, **2021**.
 21. Invariant submanifolds in complex contact metric structure manifolds, 3rd International conference on Recent Trend science and Technology (ICRTST-2021) organized by Maa Shakumbari Trust, Greater Noida, UP India, June 19-20, **2021**.
 22. Schwarzschild metric tensor and Einstein equations of the Christoffel symbols, International conference on social science, management and Technology in covid Era organized by Indian Academicians and Researchers Association with Institut Za Naucha Istrazivanja I Razvoj, Montenegro, 4th July **2021**.
 23. Semi-invariant almost contact manifold and Submanifolds, 4th International conference on Recent scientific and Technological Trends (ICRTT-2022) organized by MaaShakumbari Trust, Greater Noida, UP India, 23-24 April **2022**.
 24. Quasi umbilical manifold of almost hyperbolic hermite and KH-structure, National conference on role of scientific temper of society towards sustainable development, Dept. of PCM, SRT campus, Badshahi thaul Tehri Garhwal 28 Feb-01 March, **2023**.
 25. Quantum gravity and geometrical stress tensor of the radiation fluctuation, 4th International conference on Recent scientific and Technological Trends (ICRTT-2022) organized by Maa Shakumbari Trust, Greater Noida, UP India, 04-05 March **2023**.
 26. Application of mixed generalized quasi-Einstein manifolds and conformal tensor, International conference on computational and mathematical methods in applied sciences, School of applied and life sciences (SALS) Uttaranchal University Dehradun, UK30-31 March, **2023**

27. Some geometrical structures on a differentiable manifold, sub-manifolds and their applications, International conference on recent advances in Mathematics and its applications in interdisciplinary areas, Pandit Lalit Mohan Sharma, Campus, SDS University, May 13, **2023**.
28. Quasi Einstein Manifolds in space times, 2rd International conference on computational and mathematical methods in applied sciences (ICCMAS-2025), School of applied and life sciences (SALS) Uttaranchal University Dehradun, UK 29-30 March, **2024**.
29. Application of mixed generalized quasi-Einstein manifolds admitting a conformal tensor in spacetimes, International conference on Differential Geometry and Relativity, SSJ University Almora and BTKIT, Dwarahat And TSI, UK & UP, **2024**.
30. In space times, application of mixed generalized almost contact conformal tensor, 6th International conference on Recent scientific and Technological Trends (ICRTT-2022) organized by Maa Shakumbari Trust, Greater Noida, UP India, 24-25 February **2024**.
31. Geometrical Approach to Mathematical model of human Population Dynamics, 3rd International conference on computational and mathematical methods in applied sciences (ICCMAS-2025), School of applied and life sciences (SALS) Uttaranchal University Dehradun, UK 25-26 April, **2025**.

Workshop Attended

32. Workshop on AIDS Awareness, Organized by NSS and Red Ribbon Club on 12th **March 2010**, at HNB Garhwal Univ. Campus Badshahi Thaul.
33. Workshop on AIDS Awareness, Organized by NSS and Red Ribbon Club on **December 01, 2011**, at HNB Garhwal Univ. Campus Badshahi Thaul.
34. Workshop on AIDS Awareness, Organized by NSS and Red Ribbon Club on 01 December, **2012**, at HNB Garhwal Univ. Campus Badshahi Thaul.
35. Workshop on AIDS Awareness, Organized by NSS and Red Ribbon Club on 01 December, **2013**, at HNB Garhwal Univ. Campus Badshahi Thaul.

List of Research Paper Publications (National/International Journal)

1. On generalized almost contact metric structure manifold, Ultra Scientist of physics, Bhopal, Vol. 17 (1) M, pp. 55-62, **2005**. **ISSN:0970-9150**.
2. On Quasi umbilical manifold of co-dimension -2-of KH-structure manifold, Indian Res. J. of Social Sciences, vol. 11, No. 02, pp.174-177 **2006**.**ISSN: 0974-0694**.
3. On H-Protectively flat KH-structure sub manifold, of the Tenor, Society, vol. 1, pp. 41-49, **2007**. **ISSN:0974-5428**.
4. On generalized non-invariant hypersurfaces of Kenmotsu manifold, Indian Research J. of Social Sciences, Vol. 14, No. 01,pp.176-178, **2008**. **ISSN: 0974-0694**.
5. Cartesian product of r-GF structure manifolds, Journal of International Academy of Physical Sciences, Vol. 13 No. 3, pp. 293-298, **2009**. **ISSN:0974-9373**.
6. Almost Hyperbolic Hermite manifolds, International Journal of physical sciences, Ultra science, Bhopal, Vol. 21 (3) M, pp. 954 -956, **2009**. **ISSN:0970-9150**.
7. On a ϕ -connexion in a almost contact p-Sasakian manifolds, J. Nat. Acad. Math. Vol. 24, pp. 47-52, **2010**. **ISSN: 0970-5228**.

8. Cartesian product of r-Hyperbolic Hermite manifolds, J. mountain res. Vol-5 pp. 89-94, Dec., **2010**. **ISSN: 0974-3030**.
9. GF-structure motivate the mathematical space, International Journal of current research, vol. 3, pp. 235-240, **April, 2011**. **ISSN: 0975-833X**.
10. On GF-structure manifold (Nijenhuis tensor), Indian Research Journal of Social Sciences, vol. 20 No. 2 pp. 226-228 , **June, 2011**. **ISSN: 0974-0694**.
11. Kenmotsu Hyperbolic Sasakian manifolds, Indian Research Journal of Social Sciences, vol. 20 No. 2 pp.229-240 , **June, 2011**. **ISSN: 0974-0694**.
12. Quasi umbilical submanifold of KH-structure manifold, Lal, S. Journal of experimental sciences, vol. 3(1): pp. 27-30, **2012**. **ISSN: 2218-1768**.
13. Extraction studies of podophyllum hexandrum using conventional and nonconventional methods by HPCL-UV-DAD, Journal Of related tech, Vol. 37 issue 2 (2015) pp. 1-15.
14. Geometry of special metric solution, International Journal of Engineering science and Innovation Technology, vol. 4, pp. 201-207, **2015**. **ISSN:2319-5967**
15. Communicated to *International Journals of Multi-Dimensional Research* Torseforming curvature and Ricci tensor in a trans-Sasakian manifold, **2015**.
16. Mathematical Impact of Blood Circulation in a Vessel, International Journal of Research in Engineering and Applied Sciences, Vol. 5, issue 6, pp. 180-194, **2015 (I.F.– 5.981)**. **ISSN: 2249-3905**.
17. Airway Management in a Patient with Severe Ankylosing Spondylitis Causing Bamboo Spine: Use of Aintree Intubation Catheter, JCPSP Vol. 25 (12)(2015) pp 900-902.
18. Torseforming curvature and Ricci tensor in a trans-Sasakian manifold, Aryabhata Journal of Mathematics and Informatics (**I.F. - 4.1**) Vol.07 issue 1 pp. 1-7 **2015**.
19. Airways Management in a Patient with Serve Ankylosing spondylitis Causing Bambo Spine: Use of Aintree Inbubation Catheter, case report, Journal of the college of phy. & Surg P, vol. 25 (12) pp 900-902 (**2015**).
20. Sustainable development of fractal image coding on self-similarity, J. of global values, vol. VII (**2016**) pp 344-349.
21. H-Projective recurrent with almost product and decomposable manifolds, Int. J. of Eng. Sci and computing, vol. 06 (**2016**) issue 10 pp. 2661-2664.
22. Sustainable development of Fractal image coding on self-Similarity, Journal of Global values, Vol. 7 (2016), pp 344-354.
23. Cartesian product of hyperbolic (F, g,r,η,ξ) structure, Int. J. of maths, trends and tech. vol.46 (**2017**), pp. 264-271. ISSN: 2231-5373
24. Almost product and decomposable Ricci and curvature recurrent manifolds, Aryabhata J. of math. & Informatics, vol 9, No. 2, (**2017**) pp. 223-228 ISSN: 0975-7139 (P), 2394-9309 (O)
25. Almost contact hyperbolic of a unified structure manifold, Int. Res. J. of natural and appl. Sci., vol. 4 Issue 8, (**2017**), pp.46-53. ISSN: 2349-4077
26. Stability Analysis of logistic growth model with immigration effect, Indian J. sci. Res. Vol. 16(1) (**2017**), pp. 112-119. ISSN: 0976-2876 (P), 2250-0138 (O)

27. Analysis of some metric solution with geometric form, Aryabhata J. of math. & Informatics, vol. No.9 Issue2, (2017), pp 43-52. ISSN: 09757139 (P) , 23949309 (O)
28. Quasi umbilical manifold of almost hyperbolic Hermite and KH-structure, Int. J. of Engi., sci and Math. Vol. 6 Issue 8 (2017), pp 126-132. ISSN: 2320-0294
29. Mathematical model of population dynamics and growth in India, Aryabhata J. of math. & Infor., vol. 10, No.1, (2018), pp 199-208. ISSN: 0975-7139 (P), 2394- 9309 (O)
30. Age structure model with migration flow in human population dynamics, J. of applied science and computations vol. 6(3), (2019), pp. 2870-2878. ISSN: 1076-5131
31. Analysis and application of time delay model in human population dynamics, J. of computer and mathematical sciences, vol. 10(4), (2019), pp 686-694. ISSN: 0976-5227 (P), 2319-8133(O)
32. Almost Product Structure on Differentiable Manifold with Nijenhuis Tensor, IJSTR, 8(9), pp. 2279-2281, (2019) (Scopus). ISSN: 2277-8616
33. On Sasakian Manifolds with a G-Tanaka Webster Connection, JICR, IX(XII), pp.1621-1633, (2019). (Scopus UGC). ISSN: 0022-1945
34. On 3-Dimensional Lorentzian Para-Kenmotsu Manifolds, Differential Geometry-Dynamical Systems (DGDS), 22, pp.87-94, (2020). ISSN: 1454-511X
35. HGF-structure manifold with Nijenhuis and curvature tensor, J. Of Xidian Uni., Vol. 14 (3), (2020) pp 915-928. ISSN: 1001-2400.
36. Mathematical modelling of population forecasting in India, J. of Interdis., Cy. Res., Vol. 12 (1), (2020), ISSN: 0022-1945
37. Generic submanifold of quaternion Kaehler manifold, Int., J., of Sta. & appli. Math., Vol. 5(6), (2020), pp 111-118. ISSN: 2456-1452
38. Parallel transport frame of Smarandache curve in Euclidean space, J. Mountain Res., Vol. 16(1), (2021), pp 225-233. ISSN:0974-3030(P),2582-5011(E), DOI:<https://doi.org/10.51220/jmr.v16i1.23>
39. Invariant submanifolds in complex contact metric structure manifolds, GANITA, 71(1), (2021), pp. 205-214. ISSN: 0046-5402
40. Eta-Ricci Soliton on Lorentzian Para-Kenmotsu Manifold, Balkan Journal of Geometry and its Applications (BJGA), 26(2), pp.33-43, (2021). (Scopus)
41. On Conformal and Almost Conformal Ricci Solitons Concerning Lorentzian-TransSasakian Manifolds, GANITA, 71(1), pp. 33-43, (2021). ISSN: 0046-5402
42. On Lorentzian Almost Para-Contact Manifold, Journal of Mountain Research, 16(3), pp. 71-78, (2021).(web of science) ISSN:0974- 3030(P), 2582-5011(E)

43. H-Projective curvature and Ricci Recurrent manifolds, Wutan Huatan Jisuan Jishu, vol. 17 (4), (2021), pp 07-13 ISSN: 1001-1749
44. Certain conditions on η -Einstein $N(k)$ – contact metric manifolds, METSZET, journal, vol. 7 issue 11, (2022), pp 304-311. ISSN: 2061-2710
45. Complex Sasakian contact metric manifold, J. Mountain Res., Vol. 17(2), (2022), pp 219-225 ISSN:0974-3030(P), 2582-5011(E), DOI:<https://doi.org/10.51220/jmr.v17i2.25>
46. On Lorentzian para-Kenmotsu Manifolds within the Framework of Zamkovoy canonical paracontact connection, GANITA, Vol 74(2), pp. 143-154, (2024). ISSN: 0046-5402.
47. Application of Leslie Matrix model in Human Population dynamics and public health, South Eastern European Journal of Public health, Vol. XXV, S2, 2024 pp 444-459 ISSN: 2197-5248.
48. Contact conformal curvature tensor of a metric Sasakian Manifolds, Arya Bhatt J. of Maths and informatics, Vol. 17, No. 2 (2025) pp 137-146.

Total Number of Research Publication-48

Proceedings (Chapter published in books)

1. Sustainable Development of Fractal Image Coding on Self-similarity, Lal, S., National conference on Sustainable Development of India: Challenges & Remedies, **March, 2014** Anamika Publication, New Delhi.
2. Mathematical modelling flow of blood through a vessel, Lal, S. Applied mathematics **2014** pp. 86-98 , Yking book publication Jaipur India. **ISBN: 987-93-82532.**
3. Advanced in applied sciences, Rubicon Publication, 978-1-80433-962-6

Books written: 1. Discrete Mathematical Structures

2. Elementary algebraic trigonometrical structures