



Dr. Rachna Rani

- CONTACT INFORMATION** Professor (Assistant)
Department of Mathematics
University College, Ghanaur-140 702, India
rachna@pbi.ac.in
Contact No. +91-98725-54215
- RESEARCH INTERESTS** Differential Geometry with indefinite metrics, Geometry of Lightlike Submanifolds and Hypersurfaces of semi-Riemannian Manifolds
- EDUCATION**
- **Ph.D.** degree under the supervision of Dr. R.K. Nagaich, Department of Mathematics, Punjabi University, Patiala with title **Geometry of indefinite manifolds and their related structures**.
 - **M.Sc.** (Mathematics) from Punjabi University, Patiala, India.
 - **B. Ed.** from D.A.V. College of Education, Abohar.
- AWARDS**
- **Young Geometer Award** by The Tensor Society, India in an **International Conference on Differential Geometry and Relativity**, organized by Department of Mathematics, Deen Dyal Upadhyaya Gorakhpur University, Gorakhpur, during 09–11 November, 2013.
- TEACHING EXPERIENCE**
- Working as an Assistant Professor in University College, Ghanaur, from 5th August, 2016 to till date.
 - Worked as an Assistant Professor in University College, Moonak, from 28th July, 2011 to 4th August, 2016.
- REFERENCES FOR RECOMMENDATION**
- **Prof. Dr. S. S. Bhatia**
School of Mathematics,
Thapar University, Patiala, India
ssbhatia@thapar.edu;
Contact No. +91- 82880-08127
 - **Prof. Uday Chand De**
Department of Pure Mathematics,
University of Calcutta, Kolkata, India
uc_de@yahoo.com;
Contact No.: +91-94335-33873

- [Prof.\(Ex\) R. K. Nagaich](#)
Department of Mathematics, Punjabi University, Patiala-147 002. India
nagaich58rakesh@gmail.com;
Contact No. +91- 94178-74900

MEMBERSHIP OF
RESEARCH
BODIES

- [Life member](#) of International Association of Mathematical Physics, Denmark. Membership No. 1853.
- [Life member](#) of International Association of Engineers, Hon Kong, Membership No. 113583.
- [Life member](#) of The Tensor Society, India.

MEMBER OF
ACADEMIC
BODIES

- Member of [Undergraduate Board of Studies](#), Department of Mathematics, Mata Gujri College, Sri Fathegarh Sahib for the session 2018–19 and 2019–2020.

REFEREED
JOURNAL
PUBLICATIONS

1. Rashmi Sachdeva, **Rachna Rani**, Rakesh Kumar and S. S. Bhatia, Study of totally contact umbilical hemi-slant lightlike submanifolds of indefinite Sasakian manifolds, *Balkan J. Geom. Appl.*, **22** (1) (2017), 70–80. ([SCI & SCOPUS Indexed](#)) ([MR3678011](#))
2. Varun Jain, **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, Some characterization theorems on holomorphic sectional curvature of GCR lightlike submanifolds, *Int. J. Geom. Methods Mod. Phys.*, **14** (3), (2017), 1–18. ([SCI & SCOPUS Indexed](#)) ([MR3608891](#))
3. **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, The axioms of spheres in lightlike geometry of submanifolds, *Proc. Indian Acad. Sci. (Math. Sci)*, **126** (4) (2016), 613–621. ([SCI & SCOPUS Indexed](#)) ([MR3568253](#))
4. **Rachna Rani**, Sangeet Kumar, Rakesh Kumar and R. K. Nagaich, Characterizations of null holomorphic sectional curvature of GCR-lightlike submanifold of an indefinite nearly Kaehler manifold, *Anal. Theory Appl.*, **32** (2) (2016), 122–134. ([MR3529324](#))
5. Rakesh Kumar, **Rachna Rani**, Manish Gogna and R. K. Nagaich, Characterization of GCR-lightlike warped product of indefinite Sasakian manifolds, *Arab J. Math. Sci.*, **20** (4) (2014), 191–204. ([MR3227418](#))
6. **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, Totally contact umbilical lightlike hypersurfaces of indefinite S-manifolds, *Journal of Mathematics*, Volume 2013, Article ID 395787, 1–7. ([MR3097212](#))
7. Manish Gogna, **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, Totally umbilical lightlike hypersurfaces of semi-Riemannian manifolds, *J. Tensor Soc.*, **6** (2) (2012), 145–156. ([MR3076205](#))
8. **Rachna Rani** and R. K. Nagaich, On Lightlike Submersions, *J. Tensor Soc.*, **6** (2) (2012), 137–144. ([MR3076205](#))

9. **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, Characterization of CR lightlike warped product of indefinite Kaehler manifolds, *ISRN Mathematical Physics*, Volume 2012, Article ID 957176, 1–14.
10. **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, Indefinite nearly Kahler manifolds of constant type, *Eurasian Math. J.*, **2** (1) (2011), 120–127. ([MR2910825](#))
11. Rakesh Kumar, **Rachna Rani** and R. K. Nagaich, Some properties of lightlike submanifolds of semi-Riemannian manifolds, *Demonstratio Math.*, **43** (3) (2010), 691–701. ([ESCI & SCOPUS Indexed](#)) ([MR2683366](#))
12. Rakesh Kumar, **Rachna Rani** and R. K. Nagaich, The axiom of spheres in semi-Riemannian geometry with lightlike submanifolds, *Kodai Math. J.*, **32** (2009), 52–58. ([SCI & SCOPUS Indexed](#)) ([MR2518553](#))
13. **Rachna Rani**, Rakesh Kumar and R. K. Nagaich, Constancy of ϕ sectional curvatures of (ϵ) -Sasakian manifold, *Lobachevskii J. Math.*, **30** (1) (2009), 76–80. ([SCOPUS Indexed](#)) ([MR2506057](#))
14. Rakesh Kumar, **Rachna Rani** and R. K. Nagaich, Constancy of ϕ -holomorphic sectional curvature in indefinite Sasakian manifolds, *Int. Elec. J. Geom.*, **2** (1) (2009), 34–40. ([MR2501384](#))
15. Jasleen Kaur, **Rachna Rani**, R. K. Nagaich, On a Characteristic property of indefinite Sasakian manifolds with constant ϕ -holomorphic sectional curvature, *Bull. Cal. Math. Soc.*, **100** (4), 451–454 (2008).
16. Rakesh Kumar, **Rachna Rani** and R. K. Nagaich, On sectional curvatures of (ϵ) -Sasakian manifolds, *Int. J. Math. Math. Sci.*, Volume (2007), Article ID 93562, 1–8. ([SCOPUS Indexed](#)) ([MR2365734](#))

PAPER
PRESENTATIONS

1. Presented a paper in **National Conference on Differential Geometry & General Relativity**, organized by Department of Mathematics, Sardar Patel University, Vallabh Vidyanagar, Gujrat, during 28–29, November, 2017.
2. Presented a paper in **National Seminar on Higher Education for Development & Role of Teachers**, organized by General Shivdev Singh Diwan Gurbachan Singh Khalsa College, Patiala in collaboration with the Bhartiya Shikhan Mandal, on 16 July, 2017.
3. Presented a paper in the **International Conference on Differential Geometry, Algebra and Analysis**, organized by the Department of Mathematics, Jamia Milia Islamia, New Delhi, during 15–17 November, 2016.
4. Presented a paper in **National Conference on Recent Advancements in Science, Commerce and Technology**, organized by Mata Sahib Kaur Girls College, Talwandi Sabo, Bathinda, during 5–6 April, 2016.

5. Presented a paper in **National Seminar on Latest Trends in Algebra and Analysis**, organized by Guru Nanak Khalsa College, Karnal, on 19th March, 2016.
6. Presented a paper in **National Conference on Recent Trends in Environment, Science and Technology**, organized by University School of Sciences, Rayat-Bhara University, Mohali, on 11th March, 2016.
7. Presented a paper in **19th Punjab Science Congress**, organized by SUS Group of Institutions, Tangori, Punjab, during 7–9 February, 2016.
8. Presented a paper in the **International Conference on Mathematics for Brain Studies**, organized by School of Sciences, Center for Research Studies, Noida International University, Noida, during 1–3 February, 2016.
9. Presented a paper in **National Conference on Recent Development in Mathematical Modelling and Fuzziology**, organized by Department of Applied Sciences, Chandigarh University, Khrar, during 28–29 October, 2015.
10. Presented a paper in the **National Conference on Recent Trends in Mathematical Sciences**, organized by School of Mathematics, Shri Mata Vaishno Devi University, Katra, Jammu & Kashmir, during 8–9 October, 2015.
11. Presented a paper in **International Conference on Recent Trends in Mathematics**, organized by Department of Mathematics, University of Allahabad, Allahabad during July 10–12, 2015.
12. Presented a paper in **International Conference on Emerging Areas of Mathematics for Science & Technology**, organized by Department of Mathematics, Punjabi University, Patiala during 30th January to 1st February, 2015.
13. Presented a paper in the **International Conference on Algebra, Geometry, Analysis and Their Applications**, organized by Department of Mathematics, Jamia Milia Islamia, New Delhi, during November 27–29, 2014.
14. Presented a paper in **Conference on Exploring Basic and Applied Sciences**, organized by Lovely Professional University, Jalandhar, during 14–15 November, 2014.
15. Presented a paper in the **International Conference on Differential Geometry and its Applications**, organized by the Department of Mathematics, Jadavpur University, Kolkata in collaboration with The Tensor Society, during 16–18 October, 2014.
16. Presented a paper in the **International Conference on Mathematical Modeling and Statistical Analysis**, organized by PG Department of Mathematics, JC DAV College, Dasuya, Hoshiarpur, on 30th September, 2014.

17. Presented a paper in **International Conference on Advances in Pure and Applied Mathematics**, organized by Department of Mathematics, Government Degree College, Haripur (Manali), Himachal Pradesh, during 7–9 March, 2014.
18. Presented a paper in **International Conference on Differential Geometry and Relativity 2013**, organized by Department of Mathematics, Deen Dyal Upadhyaya Gorakhpur University, Gorakhpur in collaboration with The Tensor Society, during 09–11 November, 2013.
19. Presented a paper in the **International Conference on Information and Mathematical Sciences**, organized by Department of Mathematics, Baba Farid College of Engineering and Technology, Bathinda, Punjab, during 24–26 October, 2013.
20. Presented a paper in the **International Conference in Mathematical Sciences**, organized by Department of Mathematics, Government Degree College, Haripur (Manali), Himachal Pradesh, during 8–9 March, 2013.
21. Presented a paper in **3rd International Conference on Management & Technology**, organized by Continental Group of Institutes, Jalvehra, Distt Fathegarh Sahib on 3rd November, 2012.
22. Presented a paper in **7th National Conference on Innovative Developments in Engineering Applications**, organized by the Bhai Gurdas Institute of Engineering and Technology, Sangrur during 13–14 April, 2012.
23. Presented a paper in **15th Punjab Science Congress**, organized by Guru Nanak Dev University, Amritsar during 7–9 February, 2012.
24. Presented a paper in the **National Conference on Recent trends in Mathematics and Its Applications**, organized by the Department of Mathematics, Sant Longowal Institute of Engineering and Technology, Longowal, Distt Sangrur, during 16–17 December, 2011.
25. Presented a paper in the **2nd International Conference on Recent Advancement in Technology and Management**, organized by Continental Group of Institutes, Jalvehra, Fathegarh Sahib on 5th November, 2011.
26. Presented a paper in **13th International Conference of International Academy of Physical Sciences, on Emerging Interfaces of Physical Sciences and Technology**, organized by University of Petroleum and Energy Studies, Dehradun, Uttarakhand during 14–16 June, 2011.
27. Presented a paper in **14th Punjab Science Congress, Theme: Role of Scientific Innovations and Knowledge in Economic Development**, organized by the Sant Longowal Institute of Engineering and Technology, Longowal during 7–9 February, 2011.
28. Presented a paper in **Recent Advances in Chemical and Environmental Sciences-2009**, organized by Multani Mal Modi College during 16–17 January, 2009.

29. Presented a paper in **3rd National Conference on Innovative Developments in Engineering Applications**, organized by the Bhai Gurdas Institute of Engineering and Technology, Sangrur, during 14–15 March, 2008.

CONFERENCE/
WORKSHOPS
ATTENDED

1. Attended **7 Days National Workshop on Financial, Legal and Social Awareness Among Teachers**, organized by Women's Studies Centre, Punjabi University, Patiala, during 9–15 January, 2018.
2. Attended UGC sponsored Refresher Course on **The Emerging Issues in Information Technology-Mathematics**, organized by Academic Staff College, Punjabi University, Patiala during 10–30 May, 2017.
3. Attended a Regional Workshop on **Indian Women and Mathematics: Research and Career Opportunities**, organized by the Department of Mathematics, Punjabi University, Patiala, during 6–7 February, 2017.
4. Attended ICCR Sponsored One Week Research Methodology Workshop on **Simulation of a Research Problem and Deriving Conclusions**, organized by S.G.G.S. Khalsa College, Mahilpur (Hoshiarpur), Punjab, during 26 December, 2016 to 2 January, 2017.
5. Attended **UGC Sponsored Refresher Course in Mathematics**, organized by Academic Staff College, Panjab University, Chandigarh during 18th March, 2015 to 7th April, 2015.
6. Attended **Seven Days N.S.S. Camp on Health, Public Sanitation and Personal Hygiene**, organized by University College, Moonak during 13–19 February, 2014.
7. Attended a **Three Days National Workshop on Latex**, organized by the School of Applied Sciences, Chitkara University, Rajpura, Punjab, during 8–10 July, 2013.
8. Attended **Seven Days N.S.S. Camp on Health, Public Sanitation and Personal Hygiene**, organized by University College, Moonak during 15–21 February, 2013.
9. Attended **One Day Technical Workshop on Smart Technologies in Education**, organized by the Academic Staff College, Punjabi University, Patiala on January 15, 2013.
10. Attended **Three Days Training Programme on Changing Dimensions of Human Rights in India**, organized by RGNUL Enabling Unit, Rajiv Gandhi National University of Law, Patiala, in collaboration with National Human Rights Commission, New Delhi, during 1–3 September, 2012.
11. Attended **UGC Sponsored 12th Orientation Programme**, organized by UGC Academic Staff College, Punjabi University, Patiala during 3–30 May, 2012.

12. Attended a **Workshop on National e-Governance Plan**, organized by University Computer centre, Punjabi University, Patiala in collaboration with the Department of Information Technology and the Ministry of Communications & Information Technology, Government of India on 22 December, 2011.
13. Attended UGC sponsored a **Workshop on Emerging Technologies in Nano-Sciences** at Department of Physics, Punjabi University, Patiala, on 20th February, 2008.

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