

# Dr. DEEPAK SINGH

## ASSISTANT PROFESSOR

Department of Mathematics  
B.L.J. Govt. (P.G.) College Purola, Uttarkashi  
Higher Education Uttarakhand



**Research Specialization:** Quantum Computing, Quantum Communication,  
Quantum Secret Sharing, Quantum Noise


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 : [Google Scholar Profile](#)

 : [Research Gate Profile](#)

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### PERSONAL INFORMATION

Father's Name	Mr. Balam Singh
Date of Birth	25-07-1994
Nationality	Indian
Gender	Male
Languages Known	Hindi & English
Marital Status	Unmarried

### EDUCATION

COURSE	YEAR	COLLEGE/INSTITUTE	BOARD/UNIVERSITY	%
High-School	2009	Army Public School Lansdowne	CBSE	70.5%
Intermediate	2011	Army Public School Lansdowne	CBSE	80.6%
B.Sc. (PCM)	2014	D.B.S. (P.G.) College Dehradun	H.N.B. Garhwal University	73.7%
M.Sc. Mathematics	2016	D.B.S. (P.G.) College Dehradun	H.N.B. Garhwal University	87.5%
Ph.D.	2024	Indian Institute of Technology Roorkee	Indian Institute of Technology Roorkee	Awarded

**Title of Thesis:** "Quantum Communication Algorithms in Noisy Environment with Weak Measurements"

### AWARDS & ACHIEVEMENTS

- Gold Medallist - M.Sc. Mathematics (2014–2016 Batch) from H.N.B. Garhwal University.
- Qualified CSIR-NET JRF Mathematical Science –
  - [Dec 2015 (AIR-69), June 2016 (AIR-120), Dec 2016 (AIR-105), June 2017 (AIR-140), June 2018 (AIR-135)].
- Qualified Graduate Aptitude Test in Engineering (GATE) Mathematics –
  - [2016 (AIR-825), 2017 (AIR-379), 2018 (AIR-539), 2019 (AIR-809)].
- Received "**Teacher of the Year Award – 2024**" by Uttarakhand State in collaboration with Divya Himgiri, Uttarakhand State Council for Science & Technology (UCOST), ONGC Ltd. and Society for Research & Development in Science, Technology and Agriculture (SRADSTA) at **Dehradun International Science & Technology Festival (DISTF-2024)**.

## RESEARCH EXPERIENCE

- **Research Scholar | Indian Institute of Technology Roorkee** Jan 2017 – Present
  - **Research Interest:** Quantum Computation, Quantum Teleportation, Quantum Communication, Quantum Noise.

## TEACHING EXPERIENCE

- **Tutorial Assistant for B.Tech. Course-MAN-001 at IIT Roorkee** 2017 – 2018
- **Assistant Professor | B.L.J. Govt. (P.G.) College Purola, Uttarkashi** July 2019 - Present
  - Teaching UG students all the courses in the curriculum.

## RESEARCH PUBLICATIONS

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|---|------|
| • <b>Deepak Singh</b> , Sanjeev Kumar, and Bikash K. Behera. “Complexity analysis of quantum teleportation via different entangled channels in the presence of noise.” IET Quantum Communication (2022).<br><a href="https://doi.org/10.1049/qtc2.12048">https://doi.org/10.1049/qtc2.12048</a>   | 2022 |
| • <b>Deepak Singh</b> , Sanjeev Kumar, and Bikash K. Behera. “A secure deterministic remote state preparation via a seven-qubit entangled channel of a two-qubit entangled state under the impact of quantum noise.” Optics Communications (2023): 129352.<br><a href="https://doi.org/10.1016/j.optcom.2023.129352">https://doi.org/10.1016/j.optcom.2023.129352</a> | 2023 |
| • Deepa Rathi, Sanjeev Kumar, Farhan Musanna, and <b>Deepak Singh</b> . “Quantum secret sharing protocol through noisy channel with application in visual cryptography.” Concurrency and Computation: Practice and Experience: e7899(2023).<br><a href="https://doi.org/10.1002/cpe.7899">https://doi.org/10.1002/cpe.7899</a>  | 2023 |
| • <b>Deepak Singh</b> and Sanjeev Kumar. “Enhancing the fidelity of controlled cyclic teleportation via quantum weak measurement techniques to combat the decoherence due to amplitude damping.” International Journal of Quantum Information (2023).<br><a href="https://doi.org/10.1142/S021974992350051X">https://doi.org/10.1142/S021974992350051X</a>            | 2023 |
| • Priyanka Mawlia, Vikash Siwach, Pankaj Bijarianian and <b>Deepak Singh</b> “Quantum secret sharing with $(m, n)$ threshold: QFT and identity authentication.” Quantum Information Processing 23.10 (2024): 1-20.<br><a href="https://doi.org/10.1007/s11128-024-04532-5">https://doi.org/10.1007/s11128-024-04532-5</a>   | 2024 |

## PROJECTS

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| • <b>Co-Principal Investigator</b> – Project funded by ERAN (Environmental Radioactivity Research Network Centre) Japan ( <a href="https://www.ied.tsukuba.ac.jp/ernc/welcome-to-eran/">https://www.ied.tsukuba.ac.jp/ernc/welcome-to-eran/</a> ) <ul style="list-style-type: none"><li>• <b>Grant Amount:</b> ¥ 1,60,000/-</li><li>• <b>Adopt Number:</b> I-24-31</li><li>• <b>Topic:</b> Study of uranium measurements in potable groundwater samples of the Yamuna and Tons valleys in Garhwal Himalaya, India</li></ul> | April 2024<br>To<br>March 2025 |
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## WORKSHOPS & CONFERENCES

<ul style="list-style-type: none"> <li>Attended Workshop titled “<i>Numerical Modelling of Transport Phenomena in Fluid Flows for Engineering Applications</i>” organized by Department of Mathematics, Indian Institute of Technology Roorkee.</li> </ul>	18-Feb-2017
<ul style="list-style-type: none"> <li>Attended Instructional School for Teachers titled “<i>PDE: Theory and Computation</i>” organized by National Centre for Mathematics (A joint centre of TIFR and IIT Bombay) held at Indian Institute of Science Bangalore.</li> </ul>	23-July-2018 to 4-August-2018
<ul style="list-style-type: none"> <li>Attended <b>UGC-HRDC</b> One month “Faculty Induction Program/Orientation Course” organized by Ramanujan College, University of Delhi.</li> </ul>	21-March-2022 to 19-April-2022
<ul style="list-style-type: none"> <li>Attended UGC Approved Short Term Professional Development Programme Under Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching on “<i>Implementation of NEP-2020 for University and College Teachers</i>”.</li> </ul>	09-Sept-2022 to 17-Sept-2022
<ul style="list-style-type: none"> <li>Attended <b>UGC-HRDC</b> One month Faculty Development Programme on “Digital Security in Online Classroom” organized by Ramanujan College, University of Delhi.</li> </ul>	10-Oct-2022 to 16-Oct-2022
<ul style="list-style-type: none"> <li>Attended training programme on “<i>e-Granthalay: Handson training</i>” at Doon University, Dehradun organized by Department of Higher Education Uttarakhand.</li> </ul>	16-Feb-2022 to 18-Feb-2022
<ul style="list-style-type: none"> <li>Attended training programme on “<i>e-Governance: Emerging Technologies</i>” at Dr. R.S. Tolia Uttarakhand Academy of Administration, Nainital.</li> </ul>	24-Aug-2023 to 26-Aug-2023
<ul style="list-style-type: none"> <li>Presented poster titled “<i>Occurrence, correlation and health implications of uranium and other PTEs in Himalayan Springs</i>” in 5<sup>th</sup> National Conference on – Radiation Awareness and Detection in Natural Environmental (RADNET-V), Graphic Era Deemed University, Dehradun.</li> </ul>	07-Oct-2024 to 09-Oct-2024
<ul style="list-style-type: none"> <li>Attended UGC-Sponsored short term course in “<i>Artificial Intelligence &amp; Machine Learning</i>” organized by UGC- Malaviya Mission Teacher Training Centre, Jawaharlal Nehru University.</li> </ul>	26-Nov-2024 to 02-Dec-2024

## SKILLS

<ul style="list-style-type: none"> <li><b>Programming Languages</b> <ul style="list-style-type: none"> <li>MATLAB</li> <li>Python</li> <li>C++</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><b>Software Packages</b> <ul style="list-style-type: none"> <li>MS Office</li> <li>LaTeX</li> <li>HTML, CSS</li> </ul> </li> </ul>
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## HOBBIES AND INTERESTS

- Playing & Following Chess, Automobile, Snooker, Photography.

**I hereby declare that the information given above is true and to the best of my knowledge.**

**(DEEPAK SINGH)**