

# RAMAN RESEARCH INSTITUTE

## **Announcement of opportunity for exciting research in Experimental Satellite based Quantum Communications**

The **Raman Research Institute**, funded by the Government of India, is a premier institute engaged in research in basic sciences. More information about the Institute, the fields of research, and other details can be viewed at its website [www.rri.res.in](http://www.rri.res.in).

Applications are invited from individuals for a contract based Post Doctoral Research Associate at the Quantum Information and Computing lab, for a **period of one year, with a possible extension up to four years or coterminous with the project (whichever is earlier)**. **The yearly extension will be based on annual performance review, which will be conducted at RRI.**

The candidates must possess good academic record and experimental research aptitude in Physics, especially in the areas of Quantum Physics and Optics.

The Quantum Information and Computing (QuIC) lab of RRI is working on a mega project on Quantum Experiments with Satellite Technology (QuEST) in collaboration with the UR Rao Satellite Centre (URSC) of the Indian Space Research Organization (ISRO) [[http://www.rri.res.in/quic/landing\\_QKD.php](http://www.rri.res.in/quic/landing_QKD.php)]. The project is aimed at developing quantum communications technologies using satellites. As algorithmic breakthroughs and imminent advent of quantum computers both pose immense threats to classical key distribution based communication tools, quantum key distribution proves to be the only available means of providing information theoretically secure avenues of secure communications, especially important in strategic sectors like banking and defence.

Through this project, RRI with support from the URSC will develop new tools in quantum key distribution which will also involve satellite based technologies.

The selected candidate under this announcement will avail a unique opportunity to participate in this internationally competitive effort towards quantum communications experiments in the free space domain, some involving communication via dedicated satellites, as well as international linkages.

We are currently looking for one appointment within the Quantum Information and Computing lab, Light and Matter Physics group of the Institute. The appointment is on a contractual basis. The candidates will be associated with the **Quantum Information and Computing lab, LAMP Group** of the Institute. The appointee will be expected to work in a team and should be willing to travel and work outdoors as may be required. The details of the required qualifications and experience are given below.

### **Remuneration:**

1st Year: Rs.47,000 + HRA @ 24% p.m

2nd Year: Rs.49,000 + HRA @ 24% p.m

Note: Those who have submitted the thesis, but are yet to complete the requirements for award of Ph.D will be paid Rs. 38,000/- +HRA@24% p.m

A higher initial start may be considered in deserving case.

### **Eligibility:**

Age: Not more than 35 years as on the closing date for receiving the completed application forms online. Age relaxation may be considered for candidates with relevant research experience.

### **Essential:**

1. PhD (areas relevant to the job description). Those who have submitted the thesis but are yet to complete the requirements for the award of Ph.D may also apply.
2. Programming knowledge in Labview and at least one of Matlab/Mathematica.
3. Prior experience of working in an optics based lab environment and familiarity with practical handling of optical and opto-mechanical components.
4. Familiarity with quantum information/ quantum communication-based research work and familiarity with basic concepts in the field through course work, online classes etc. For instance, Knowledge of quantum information at the level of "Quantum Computation and Quantum Information" by Nielsen and Chuang [especially chapters 1, 2, 7 and 12].

### **Desirable:**

The candidate should be motivated and should have a flair for experimental work as well as programming skills. 75% or more marks in aggregate or equivalent CGPA in the qualifying course is desirable.

PhD in experimental quantum information/ quantum communication based research and/or previous work experience in quantum information/ quantum communication based research work.

### **General Information:**

- Those who are already working in Government/Semi Government/PSU/Autonomous Bodies shall submit their applications through proper channel.
- The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit, on the basis of qualification and experience higher than the minimum prescribed in the advertisement. Mere fulfilling the essential and desired qualifications will not entitle an applicant to be called for interview.

- Age relaxation will be applicable as per Govt., of India rules for the candidates belonging to SC/ST/OBC/Persons with disabilities categories.
- The institute reserves the right to relax any of the above requirements in exceptional cases.
- The Institute reserves the right not to fill the posts herein advertised. Canvassing in any form shall disqualify the candidate.

### **Selection procedure:**

Apply online at:

[http://www.rri.res.in/openings/postdoc\\_ra\\_quic.html](http://www.rri.res.in/openings/postdoc_ra_quic.html)

Candidates may send two reference letters to [usinha@rri.res.in](mailto:usinha@rri.res.in). Referees should directly send the letters to the given email id.

Shortlisted candidates will be called for an interview along with presentation of a seminar based on their previous work. Call letters for interviews are likely to be sent in August 2021; the interviews will be held at RRI.

Online submission of application starts: June 10 2021. Closing date for receiving the completed application forms online: July 18, 2021 Applications received after the last date will not be considered.