

RAMAN RESEARCH INSTITUTE

Advt. No. 15/2022

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.

Applications are invited from individuals for contract based post doctoral research associate positions at the Quantum Information and Computing lab, for a **period of one year, with a possible extension up to three 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 area of 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]. 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 two appointments 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:

A consolidated remuneration of Rs. 47,000 plus permissible HRA per month will be paid to the candidate for the first year. The remuneration will be increased to Rs. 49,000 plus permissible HRA and Rs. 54,000 plus permissible HRA in the second and third year respectively. Candidates with prior post PhD experience may be considered at a higher starting salary as applicable to second year or third year based on the experience.

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.

Eligibility:

Age: Not more than 36 Years as on the closing date for receiving the completed application forms online. Age relaxation may be considered for exceptional candidates with relevant research experience.

Essential:

1. A doctoral degree in Physical sciences, Optical engineering or related domains in optics based research. Those who have submitted the thesis but are yet to complete the requirements for the award of Ph.D may also apply.
2. Prior experience of working in an optics based lab environment and familiarity with practical handling of optical and opto-mechanical components.
3. Knowledge of quantum mechanics with at least one basic course and one advanced course in quantum mechanics successfully completed during Bachelors/Masters' degree.

Desirable:

The candidate should have one or more of the following skills–

1. Knowledge in controlling of equipment using Labview.
2. Programming knowledge in C++/ Python /Matlab/ Mathematica.
3. Knowledge of quantum information at the level of “Quantum Computation and Quantum Information” by Nielsen and Chuang [especially chapters 1, 2, 7 and 12].
4. PhD in experimental quantum information/ quantum communication based research and/or previous work experience in experimental 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.

How to apply:

- Apply with CV to: quic-job@rri.res.in with a copy to savithamd@rri.res.in. The last date for receipt of applications is 15th January 2023. Applications received after the last date will not be considered.
- Two referral letters in support of application are required. Referral letter may be sent directly to usinha@rri.res.in.