

Quantum communication

The properties of “superposition of states” and “entanglement” in quantum mechanics lead to innovative methods of information processing. Some of them are quantum key distribution (QKD), quantum teleportation, quantum dense coding and quantum computation together with quantum algorithms more powerful than their classical counterparts. Out of these, the most prominent and mature technology is QKD, which is the secure sharing of private encryption keys. QKD has two key features that makes it unique with respect to classical (computational) security schemes: its security is robust against crypto-analytical progress (future proof) and secondly its operation reveals eavesdropping.

There are QKD protocols based on single photon sources as well as entangled photon sources. Although most of the implementations use coherent weak laser pulses (CWLP) as single photon source, there are a few which use entangled photons.

In the laboratory at PRL, we are developing communication protocols using both, CWLP and entangled photons.

We are looking for two (02) Junior Research Fellows and two (02) Research Associates/Post-doctoral fellows to work under the project “Free space quantum communication: Road to satellite quantum communication” sanctioned by Department of Science and Technology (DST), Government of India.

Essential Qualification for Junior Research Fellows:

M.Sc. in Physics or Photonics with first class (60%) or equivalent grades.

Strongly motivated candidates with B.Tech. in Electronics and Communication can also be considered.

Preference will be given to candidates who have qualified national level tests such as NET/GATE/JEST

The JRF position is for three (03) years.

The Fellowship will be as per DST norms:

<http://www.dst.gov.in/sites/default/files/OM%20Fellowship%20Revision-2019.pdf>

Essential Qualification for Research Associates/Post-doctoral Fellows:

PhD in Optics or Photonics

Candidates who have already submitted the PhD thesis and waiting for the degree can also be considered for the position.

Preference will be given to candidates who have already defended their thesis.

The position is for one year that could be extended for another two years depending on the performance of the candidate

The Fellowship will be as per DST norms:

<http://www.dst.gov.in/sites/default/files/OM%20Fellowship%20Revision-2019.pdf>

Please send your applications by E-mail to: rpsingh@prl.res.in; rpkpsingh@gmail.com; before 25th of May 2019.

Registrar