

Indian Institute of Technology Dharwad

Call for selection process for admissions for Ph.D. through project (Department of Physics)

Letter No.: PH/Admissions/PhD_PRJ/2019-20/0001

Date: 30-05-2019

Dear Candidate (s)

With reference to your application for the admission to PhD through project programme in the Department of Physics at IIT Dharwad, you have been provisionally to appear for selection process. The selection procedure consists of two rounds: an online screening test, followed by one round of interview. The interview will be conducted only for those candidates shortlisted from the online screening test.

The selection process is scheduled during **4th of July, 2019** at IIT Dharwad. Please report at the Academic Block, IIT Dharwad at 9:00 AM on 4th July 2019. You are required to be present for the whole day (4th July, 2019). Accommodation CANNOT be provided by the Institute.

The syllabus for the screening test is given in the Ph.D. Information Brochure of IIT Dharwad, available online at:

<http://www.iitdh.ac.in/academics/phd.php>

Electronic gadgets like mobile phone, smart watch etc. are NOT permitted in the examination room. However, non-programmable scientific calculator is allowed for the tests. The candidate is requested to bring the following documents:

- Photo ID Card (preferably Passport, Voter ID or PAN Card)
- Printed copy of application
- Thesis/dissertation/report of M.Tech. or equivalent degree
- Proof (receipt / acknowledgement) of application fees payment
- Two passport size photographs
- Copies of papers published, if any
- Following documents in original along with self attested photocopies
 - Date of Birth Certificate/10th class marks sheet
 - Marksheets (all semesters) of graduation and post-graduation
 - Provisional Degree Certificate (PC)/Qualifying Degree Certificate (QDC) (if available)
 - Qualifying Exam Score Card Certificate (GATE/CEED/CSIR/UGC or any other) if applicable
 - Caste Certificate (OBC-NC (Non-Creamy layer)/SC/ST) (if applicable)
 - Persons with Disability Certificate (for PwD category) (if applicable)
 - Experience Certificate (if applicable)

The results of the selection process will be declared on or before 8th July, 2019.

The Institute reserves the right to withdraw the admission AT ANY TIME, in case the candidate does not fulfil the minimum qualification/required percentage of marks in qualifying examination or provides any false information.

Note:

1. Only for OBC-NC: OBC certificate must be supplemented with NC certificate.
2. No Travelling Allowance will be paid to the candidates appearing for the selection process.

PLEASE NOTE THAT THIS CALL IS MERELY AN INTIMATION FOR THE SELECTION PROCESS AND DOES NOT GUARANTEE ADMISSION.

Academic Office, IIT Dharwad



Ph.D. admission under Project Staff Category

Additional Information

Project Details:

Title: Quantum Information Protocols with Photon Added and Subtracted Multimode Continuous Variable States

Duration: 2 years and 9 months

Funding Agency: SERB-CRG

Principal Investigator / Ph.D supervisor: Dr. R. Prabhu

Abstract: Continuous efforts towards qualification, quantification, and manipulation of quantum entanglement in continuous variable (CV) quantum systems has led to the realization of many quantum information protocols. Along with studies related to entanglement, there have been continuous efforts to explore the non-classicality feature of CV quantum states. The non-classicality is said to be the first signature for the presence of entanglement in CV quantum states. There exists many schemes to generate such non-classical CV states, for example, by either adding photons to or subtracting photons from a light beam by sending it through the beam splitter, frequency down conversion, and homodyne detection. Successful generation of single photon added coherent states and thermal state, photon added then subtracted and photon subtracted then added thermal states and single-photon subtracted squeezed states in the laboratories are recently been reported. During the execution of this project, our goal is to use the photon added or subtracted CV states, like squeezed vacuum, coherent, thermal, twin beam states, etc, in multimode scenario to quantify the non-classicality, quantum correlations (including entanglement) and also to analyse their utility in implementing certain quantum information protocols, like quantum dense coding, teleportation, entanglement swapping, etc. The proposed research work is at the interface of quantum information and quantum optics.

Type of work (skill sets expected): The research work to be carried under this project is theoretical in nature. The student should also be willing to do computer programming to support his theoretical findings.

Terms and Conditions:

Category: Project Staff (Ph.D): IIT Dharwad admits Ph.D. candidates as a full time research scholar funded by external agencies.

Duration over which scholarship would be provided from the external agency: The current project for which the Ph.D. position is being offered has the validity of 2 years 9 months from the date of Ph.D. admissions. After 2 years and 9 months, student would automatically convert himself/herself into self-finance category (fellowship will not be paid by the Institute). However, student would be encouraged to apply for UGC-CSIR Senior Research



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भारतीय प्रौद्योगिकी संस्थान धारवाड
Indian Institute of Technology Dharwad

Indian Institute of Technology Dharwad

WALMI Campus, Belur Industrial Area,
Near High Court, PB Road, Anjaneya Nagar,
Dharwad 580011, Karnataka

Fellowship or any other funding avenues for getting scholarship beyond 2 years and 9 months.

Scholarship details: Monthly scholarship is Rs. 31,000 + HRA (as applicable) for the initial 2 years. The monthly scholarship will be enhanced to Rs. 35,000 + HRA (as applicable) from 3rd year onwards until the completion of the project. The payment of scholarship is subjected to availability of funds in the Manpower head of the project.

Hostel and Mess facility: HRA will be provided to the student, hence, no campus accommodation will be available. Mess facility in the campus will be available at guest rates.

Local Transport: Campus is well connected with public transport system. Candidates would bear the travel expenses.

Policies concerning Ph.D. under Project Staff category:

- Change of category from Project staff to teaching assistant will not be allowed.
- Change of supervisor will not be allowed during the entire Ph.D. program.
- During the tenure of the project, student shall not work for other projects or as Teaching assistant of the institute.

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