**Project Title**: Development of cryogenic low noise amplifier for single photon detection

**Project Summary**
Single photon detectors require cryogenic low noise amplifiers. This requires careful choice of components that can match arbitrary impedances and measure small signals without reflections. The amplifier needs to work at cryogenic temperatures that requires model development at low temperatures, silicon validation and finally testing at cryogenic temperatures. This project requires electrical engineers with intention experience in analog system design.

**Ph.D. Supervisors**

<table>
<thead>
<tr>
<th>Role</th>
<th>Name of Faculty</th>
<th>Academic Unit in IITD/Institute/University</th>
<th>Email ID (Official)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor 1</td>
<td>Krishna Balasubramanian</td>
<td>DMSE</td>
<td><a href="mailto:Bkrishna@mse.iitd.ac.in">Bkrishna@mse.iitd.ac.in</a></td>
</tr>
<tr>
<td>Supervisor 2</td>
<td>Ankesh Jain</td>
<td>EE</td>
<td><a href="mailto:ankesh@ee.iitd.ac.in">ankesh@ee.iitd.ac.in</a></td>
</tr>
</tbody>
</table>

**Project requirements (Student qualifications, experience required, etc)**
*The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)*

- Bachelors in EE/ECE. Experience in analog circuit design

**Source of fellowship/funding**
(CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)

Project Fellowship No. : RP04411G

**Role of Faculty Members involved:**

| Supervisor-1 | Cryogenic measurement, problem definition |
Analog circuit design, silicon realization and cryogenic testing.