

CALL FOR PROPOSALS FOR DEVELOPMENT OF QUANTUM TECHNOLOGIES

The I-HUB Quantum Technology Foundation (QTF) is one of the 25 Technology Innovation Hubs (TIHs) funded under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS), Department of Science and Technology (DST) to promote development of products based on advanced technologies such as IoT, HCI, Cobotics, Fintech and Quantum Technologies. The I-HUB Quantum Technology Foundation is a Section-8 company promoted by IISER, Pune dedicated to development of Quantum Technologies.

The general objective of I-HUB QTF, as laid down by the DST, is to be the nodal centre spearheading the activities in Quantum Technologies. With leading-edge knowledge, competency and facilities, QTF will attract potential and harness expertise available nationwide, thus fostering research innovation, world class technology and product development. It shall coordinate across the country and build linkages with research institutes and labs in India and abroad. The hub will work in close collaboration with industry to deliver commercial technology and products and build a vibrant innovation ecosystem by providing a reliable platform for technology-based start-ups and entrepreneurs.

Technology/Product Development and Commercialisation is one of the specific objectives of the I-HUB QTF.

As part of this objective, the I-HUB Quantum Technology Foundation invites proposals for development of quantum technologies from individual researchers associated with institutions of higher learning and research or in collaboration with an Industry with the Principal Investigator (PI) from academia/research organization.

In particular, the proposals should be from the domains of Quantum Information and Metrology, Quantum Communication, and Quantum Materials and Devices. The technologies should specifically be harnessing the potential of the 'second quantum revolution' wherein, delicate quantum superpositions and entanglement in quantum should be utilised for translation into products. Classical technologies that enable development of quantum devices are also encouraged to apply.

The proposers should have a proven track record of working in the areas of quantum technologies and related areas that enable quantum technologies through published work in the form of patents/research publications in reputed international journals and/or product development and commercialisation. Indigenous development with potential for intellectual property generation will be encouraged.

The proposals will be evaluated for technical correctness and feasibility through a peer review process involving personnel from industry and academia.

I-HUB QUANTUM TECHNOLOGY FOUNDATION

Dr. Homi Bhabha Road, NCL Colony, Pashan, Pune 411008, Maharashtra, India.
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CIN: U73100PN2021NPL199577

The following are the broad areas of the I-HUB QTF, however, the TIH is open to other related projects that have the potential of delivering prototypes or products that broadly satisfy the criteria mentioned above.

1. Quantum Information and Metrology
<ul style="list-style-type: none"> a) Development of physics package for quantum processors (fully programmable gate-based quantum computers as well as quantum simulators) b) Development of sensors for magnetic fields and electric fields c) Development of portable atomic clocks d) Development of quantum accelerometers and gravimeters
2. Quantum Communication
<ul style="list-style-type: none"> a) Development of portable entangled photon sources b) Development of Quantum repeaters c) Development of Quantum Key distribution systems d) Development of device independent Quantum Random Number generators e) Development of quantum cryptography algorithms and post quantum cryptography algorithms
3. Quantum Materials and Devices
<ul style="list-style-type: none"> a) Development of single photon sensors for visible and infrared regions b) Development of spintronic devices c) Development of sensors for electric and magnetic fields d) Development of sensors/devices based on 2D materials e) Development of sensors/devices based on hybrid nanostructures f) Development of multifunctional quantum materials for improved thermoelectric, electro/magneto-caloric, and opto-electronic properties g) Utilisation of earth abundant materials for existing solid-state applications h) Predictive modelling of new material platforms and phenomena
4. Enabling Technologies
<ul style="list-style-type: none"> a) Instrumentation for enabling quantum systems design, integration and deployment b) Low noise measurement systems c) Development of data acquisitions and control systems targeted towards enabling the above-mentioned applications d) Development of arbitrary waveform and signal generators for the above applications e) Development of cryogenic electronics systems f) Development of optical systems, devices and components g) Development of tunable laser systems h) Development of state-of-the-art cryogenic and vacuum technologies
Any other proposal that has high relevance to Quantum Technologies

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Instructions

1. The project proposal should be submitted online at [\[Click here\]](#)
Alternatively, please scan the code at the bottom of the page for submission of the proposal.
2. Kindly note that the certificate from the investigator and the endorsement from the head of the institution are to be given on the letterhead of the institute.
3. The last date of submission of application is 20th September 2022.
4. The maximum funding support under this call is Rs. 50 Lakhs.
5. Typical duration of the project is 3 years, subject to satisfactory progress monitored by periodic reviews.
6. All proposals will be evaluated and executed as per the policies and procedures of I-HUB QTF. All IP/patents will be jointly owned by the host institute and I-HUB QTF. However, the commercial rights of this IP and the technology transfer rights belong to I-HUB QTF.
7. Applicants can submit proposals for more than one project by filling up separate applications for each project. I-HUB QTF may support only one project at a time from the PI.
8. For any queries, please contact the I-HUB QTF team at projects@quantech.org.in



Scan the image for submission of proposal

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