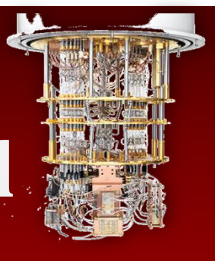
ICC Webinar Series
Indian Cryogenics Council



Cryogenics & Quantum Computing

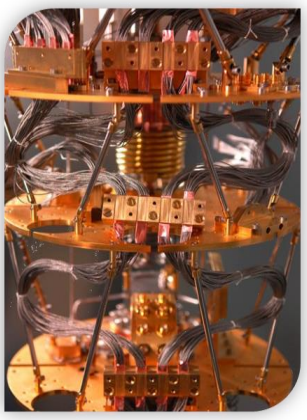
Saturday, 5th December 2020, 4:00 PM to 5:30 PM

Quantum computers can solve complex problems in a matter of seconds that would otherwise take millions of years by conventional computers. Hence, quantum computers are going to play a vital role in advanced material science, cryptography, data base processing, artificial intelligence, modern transportation, drug development and many other industrial areas.

The power of ***Quantum computers*** lies in its ability to generate and manipulate quantum bits or qubits. Compared to a classical bit which can take two states only (0 or 1), a qubit may have multiple values at the same time. Until they are read out, qubits can exist in several intermediate states through quantum superposition.

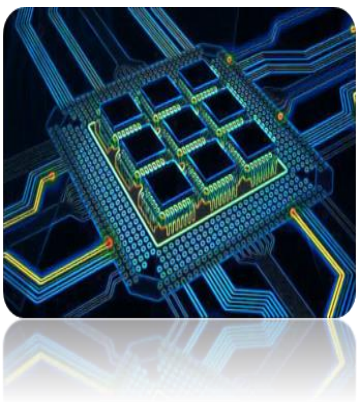
However, qubits must be shielded from all external noise which will destroy the two state superposition resulting in computational errors. ***Cryogenic cooling*** of quantum computers to millikelvin level minimizes the chances of qubits incorrectly flipping in between quantum states. Further, cooling of quantum computer chip to nearly absolute zero suppresses the thermal noise and stabilizes the motion of qubits, making them more controllable with negligible mutual interaction.

The present webinar on **'Cryogenics and Quantum Computing'** is planned to cover both basics of quantum computers and their cooling aspects at cryogenic temperatures by two eminent speakers from academia and industry.



Register here

Webinar link will be shared post registration



Highlights

- ❖ Buzz word among scientists developing next generation computers is Quantum computing
- ❖ Near Absolute zero temperature is an integral part of Quantum Computers

Here is an opportunity to hear experts talk about Quantum Computing and the Role of Cryogenics in Quantum Computing

Who can participate

- Industry personnel: Associated with development of semiconductors and computing.
- Research Organizations: ISRO, DAE, DRDO, MeitY, CSIR etc.
- Academic Institutes: IISc, IITs, NITs, IISER, C-DAC, Universities etc.
- Public Sector Units: SCL, BEL etc.
- Small and Medium size enterprises involved in large scale computing
- Research Scholars

Webinar Speakers

Prof. Suddhasatta Mahapatra
Associate Professor
Department of Physics
IIT Bombay

What is Quantum Computing ?

Dr. Ziad Melhem
Strategic Business Development Manager
Oxford Instruments NanoScience, UK

Cryogenics in Quantum Computing

ICC Webinar Committee

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