# New test with quantum coins & computers for quantum sensing

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Recently **Researchers from Raman Research Institute (RRI), an autonomous institution under the Department of Science & Technology,** have devised a new test **for fairness of quantum coin or 'qubit'** (the basic unit of information in a quantum computer) using **entanglement theory.**

**Key highlights**

- This is a significant contribution to quantum state discrimination, an essential aspect of quantum information science which is expected to influence quantum sensing.
- The new test uses entanglement to test the fairness of the quantum coin.
- **Entanglement is a special type of correlation that exists in the quantum world with no classical counterpart.** The researchers from RRI made use of this quantum resource to arrive at a test for fairness of a quantum coin (a qubit). Their strategy, which makes use of entanglement, enables better discrimination between quantum states. Such advantage is valuable in quantum sensors.

**Significance of Quantum Information and Quantum Computing Technology**

- The domain of Quantum Information and Quantum Computing Technology is a growing area of research which is expected to **influence Data Processing**, which in turn, plays a central role in our lives in this Information Age.

- For instance, bank transactions, online shopping and so on crucially depend on the efficiency of information transfer.
- Thus the recent work on quantum state discrimination is expected to be valuable in people's lives in the current era.

## Difference between normal computing and Quantum computing

- All computing systems rely on a fundamental ability to store and manipulate information. Current computers manipulate individual bits, which store information as binary 0 and 1 states.
- Quantum computers leverage quantum mechanical phenomena to manipulate information. To do this, they rely on quantum bits or qubits.