

रामन अनुसंधान संस्थान / Raman Research Institute

शैक्षणिक गोष्ठी / COLLOQUIUM

Part of the events organised globally to mark the announcement of World Quantum Day on 14th April
<https://worldquantumday.org>

Quantum Information

प्रस्तुति / by

Charles H. Bennett

IBM fellow at IBM Research, New York

बुधवार 14 अप्रैल 2021, अपराह्न 09:30 बजे

Wednesday, 14 April 2021, 09:30 pm

[Join Zoom Meeting](#)

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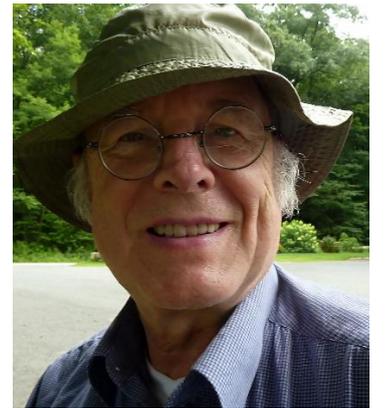
Meeting ID: 874 2968 3574 Passcode: 618012

सारांश / Abstract

The information revolution is based on what a physicist would call a classical view of information. Quantum effects were long regarded as a mere nuisance for information processing, preventing information in microscopic objects from being observed or copied accurately, but are now known to make possible feats like quantum cryptography and, if a quantum computer can be built, dramatic speedups of some computations. More importantly, the quantum approach has led to a more coherent and powerful way of thinking about information. We review this approach, especially the uniquely strong and private kind of correlation known as entanglement, which plays a role in many ways complementary to classical information. Entanglement helps explain the origin of randomness, why the future is more uncertain than the past, and, paradoxically, the macroscopic world's superficially classical appearance, which allowed quantum laws to remain undiscovered until the 20th century. In the 21st century quantum information notions are yielding insights into black hole physics and the origin of spacetime.

About the speaker:

Born in 1943 Charles H. Bennett is the son of music teachers. He got his BS in chemistry from Brandeis University in 1965, his PhD in Chemical Physics from Harvard in 1971, did a postdoc under the late Aneesur Rahman at Argonne Laboratory in 1971-2, and has been a research staff member at IBM's T.J. Watson Center since 1973. He is best known for his work on the physics of information processing, including the thermodynamics of computation, the Maxwell's demon problem, quantum cryptography, quantum computing, quantum channel capacity, and entanglement-assisted communication including the quantum reverse Shannon theorem. Lately he has become interested in the applications of quantum information and computational complexity theory to cosmology. He is an IBM Fellow, a Fellow of the American Physical Society, a member of the US National Academy of Sciences, and a recipient of the Rank Prize, Harvey Prize, Okawa Prize, ICTP Dirac Medal, Wolf Prize, Shannon Award, and BBVA Frontiers of Knowledge Award.



सभी का स्वागत है / All are welcome