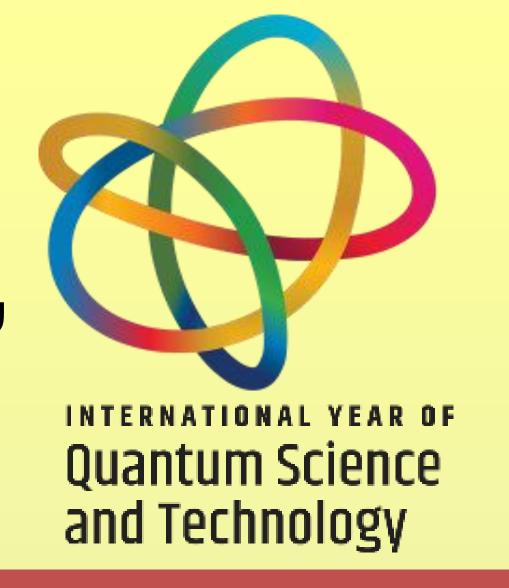


## International Year of Quantum Science and Technology (IYQ)-2025, at TCG CREST (Kolkata, India)



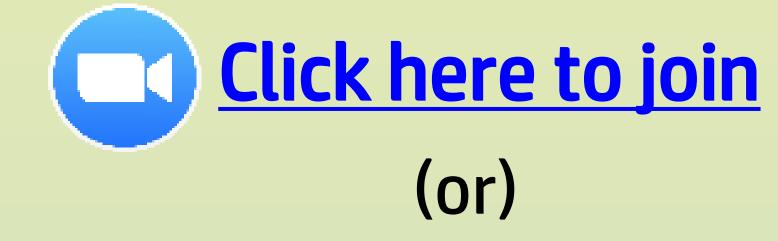


Prof. Seth Lloyd
Massachusetts Institute of
Technology (MIT), USA.



Venue:
Classroom-2, TCG CREST

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## Title - Natural Intelligence: The information processing power of life

## Abstract

Quantum computers work by processing the information stored on microscopic degrees of freedom – electron spins, photons, atoms. This talk applies the physics of computation to analyze the amount of information processing that takes place in living cells. Whenever a photon is absorbed by a leaf, DNA is copied, RNA is expressed, a protein folds, and elementary logical operation takes place. I calculate the number of bio-ops performed by living systems: the cells in your body are performing on the order of 10^21 logical operations per second: one zeta flop – equal to the number of logical operations performed by all the electronic computers in the world.

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