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## **[Colloquium] Emergence of electromagnetic wave and gravitational wave from quantum information (qubit ocean)**

*Thursday, March 4, 2021 2:00 PM (1 hour)*

From quantum theory, we know that all elementary particles are waves. For example, photons are waves that satisfy Maxwell equation. Here we discuss the possibility that our space is a qubit ocean. We show that, if the qubits that form the space are properly entangled, the deformation of the qubit ocean corresponds to wave that satisfy Maxwell equation. This is an emergence of electromagnetic wave from quantum information. We then discuss attempts to have an emergence of gravitational wave from qubit ocean, that is only half successful.

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