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Completeness of Quantum Theory: Still an Open Question

Guest Editor:

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Message from the Guest Editor

- Which sense models, which we create to quantitatively describe our observations and experiments, may be considered as a complete description of the physical reality?
- Quantum phenomena and experiments produce time series of data. We should answer an important question: *Is QM is predictably complete (whether quantum probabilities grasp all reproducible fine details of these time-series of data)?*
- Despite erroneous belief, the violation of BI does not justify speculations about nonlocality, super-determinism, or retro-causality in nature.
- Contextuality is the key to understanding quantum paradoxes and is a resource for quantum information.
- Two slit experiments with larger and larger molecules suggest that to explain these experiments in an intuitive way we need both waves and particles.
- Recent experiments with bouncing droplets, the continuation of pioneering research of Couder et al., provide an intuitive understanding of various quantum phenomena.
- There are successful subquantum theoretical causal models and computer simulations of some quantum phenomena.

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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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