Institute Lecture

Prof. Yuval Gefen

Weizmann Institute, Israel

Weak Measurements: A Peephole to the Quantum World

@ 12.00 noon | Saturday, January 4, 2020

Venue: L 16 (LHC)

About the Talk

Weak measurement (WM) is an alternative to von Neumann's dogma of the "collapse" of a wave function: it avoids the necessity of the latter's complete destruction, while capable of extracting partial information from the system measured. Concomitantly, measurement is associated with a back-action of the detector on the system's state.

This back-action can be harnessed for the purpose of steering a quantum state into a pre-designated target state, and for quantum engineering of non-trivial states of matter.

He will also elucidate the relation of this to driving protocols of open systems, and to active error correction platforms.

About the Speaker

Prof. Yuval Gefen completed his BSc (1978) and doctorate summa cum laude (1984) from Tel Aviv University. He conducted postdoctoral research at the Institute for Theoretical Physics at the University of California at Santa Barbara, and with 2016 Nobel Prize winner David J. Thouless, at the University of Washington in Seattle. In 1986 he joined the Weizmann Institute where he holds the Isabelle and Samuel Friedman Professorial Chair of Theoretical Physics.

Prof. Gefen is a theoretical physicist with varied area of interest. Among many important contribution to basic and applied sciences, his predictions led to discovery of a single-electron transistor. He is also interested in understanding the concept of measurement within the framework of quantum mechanics, and how to obtain information that is not accessible employing "classical measurement tools". He is recipient of many international awards such as the Bergmann award, Morris L. Levinson Award, the Alexander von Humboldt Award and Max Planck Research award. He is a Fellow of the Institute of Physics and of the American Physical Society and was also selected as an Outstanding Referee of the Physical Review and Physical Review Letters.

All are invited to attend

Dean of Research and Development