האוניברסיטה העברית בירושלים
The Hebrew University of Jerusalem

American Physical Society
Racah Institute of Physics

Workshop VI
Quantum biology. Does it exist and is this important?

December 21, Wednesday, Danciger B building, seminar room, 4.00 pm
(21.12.16 at 16.00)

1. 16.00 – 16.10 Prof. M. Ya. Amusia **Introductory remarks**
2. 16.10 – 17.10 Prof. Yossi Paltiel: **The physicist's view on quantum biology**
3. 17.10 – 17.50 Prof. Nir Keren: **Is there anything quantum in biology and if so, is it important? (The biological perspective)**
4. 17.50 -18.15 - **General discussion: We - to APS, APS – to us. Moderators: Professors** M. Amusia and R. Herber.

All interested, including students, are welcomed.

Refreshments will be in the lobby of Danciger B building, from 15.45

M. Ya. Amusia and R. Herber, APS Fellows

Abstract:

Can nontrivial quantum effects control biological systems behavior? Do biological processes take advantage of the quantum properties of matter? At first glance, this seems unlikely due to the large disorder associated with biology. However, evidence for processes at the quantum/classical border are emerging in enzymology, bioenergetics and most prominently in photosynthetic excitation transfer in light-harvesting complexes (LH). These are ultrafast reactions that exhibit efficiencies higher than those of artificial devices. Long-range quantum coherence could contribute to the high yield of these reactions. If true harnessing the design principles of the biological system can lead to the realization of devices that will transform future quantum technology.

In this workshop, we will explain the basic claims of quantum biology and argue in favor (Yossi Paltiel) and against (Nir Keren) these claims.