

ΣΕΜΙΝΑΡΙΟ ΚΕΝΤΡΟΥ ΚΒΑΝΤΙΚΗΣ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ &
ΝΑΝΟΤΕΧΝΟΛΟΓΙΑΣ/ CCQCN SEMINAR

Wednesday, 18 November 2015

11:00-12:00

3rd Floor Seminar Room

**Efficient Biologically Inspired Photocell Enhanced by Delocalized
Quantum States**

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Abstract

Artificially implementing the biological light reactions responsible for the remarkably efficient photon-to-charge conversion in photosynthetic complexes represents a new and promising direction for the future development of photovoltaic devices. In this talk, I will develop such a paradigm and present a few schemes based on the nanoscale architecture and molecular elements of photosynthetic light-harvesting complexes. I will show how quantum interference effects induced by the dipole-dipole interaction between molecular excited states may lead to enhanced light-to-current conversion and power generation for a wide range of electronic, thermal, and optical parameters and optimised dipolar geometries. These results open a promising new route for designing artificial light-harvesting devices inspired by biological photosynthesis and quantum technologies.

