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Department of Physics

Colloquium

Excitons and Charge Transfer in Photosynthesis

Speaker: Rienk van Grondelle
Dept of Physics and Astronomy, Vrije Universiteit Amsterdam
and Dept of Physics, University of Pretoria

Date & Time: Monday, 31 July 2017 at 11:30

Venue: 5-42, Natural Sciences-1 Building

Abstract:

Photosynthesis converts the energy of solar photons into the energy of charge separated states. To do so photosynthesis employs pigments (chlorophylls, carotenoids) bound to proteins. Light harvesting proteins (LHCs) absorb the light and transfer the energy on an ultrafast (fs-ps) timescale to reaction centres (RCs) where the electronic excitation energy is converted into a stable trans-membrane charge separation. Both in LHCs and in RCs the delocalized electronic states (Frenkel excitons) are mixed with charge transfer (CT) states as reflected by their strong electro-optical response. Using 2D-electronic spectroscopy (2DES) we detected the weakly allowed CT-exciton states in RCs and LHCs. In this talk I will review these experiments plus modelling and fantasize about the possible functional implications.

Enquiries: Walter Meyer, wmeyer@up.ac.za / 012 420 2637 / 082 7858432