

Photosynthesis – from Elementary Processes to Quantum Simulation

This workshop will explore elementary chemical and physical processes underlying the phenomenon of photosynthesis, with an emphasis on computation of the basic photon collection and energy transfer mechanisms. Speakers are asked to provide a pedantic background for their topics so as to be accessible to the chemistry, biology and physics communities at large (info: stopa@cns.fas.harvard.edu).

Date: Friday, October 10, 2008

Time: 9:00 am to 4:00 pm

Place: Harvard University Mallinckrodt 102, Division Room

Organizers: Alan Aspuru-Guzik and Michael Stopa

- 9:00 – 9:30 Alan Aspuru-Guzik, Harvard University, DCCB
*Introduction to Photosynthesis: Energy Transfer and Photo
protection Simulation*
- 9:30 – 10:00 Toshikazu Takada, Riken
Simulation of the Primary Event of Photosynthesis
- 10:00 – 10:30 Patrick Rebentrost, Harvard University, DCCB
The Role of Coherence in Energy Transfer
- 10:30 – 10:45 Coffee Break
- 10:45 – 11:15 Alfredo Alexander-Katz, MIT, DMSE
*Structure and self-assembly of the green-sulfur bacteria
light-harvesting antenna*
- 11:15 – 11:45 Noel Michele Holbrook, Harvard University, DCCB
Plant Biology and Photosynthesis
- 11:45 – 1:00 Lunch and discussion break
- 1:00 – 1:30 Leslie Vogt, Harvard University, DCCB
Engineering energy transfer in small quantum dot arrays
- 1:30 – 2:30 Roel Sanchez-Carrera, Harvard University, DCCB
Charge Transport in Organic Electronic Materials
- 2:30 – 3:00 Sheng Meng, Harvard University Physics Department
TBD
- 3:00 – 3:30 Franco Nori, Riken and University of Michigan
Superconducting Qubits
- 3:30 – 4:00 Michael Geller, University of Georgia
Quantum Simulation of Photosynthesis using SC Qubits