

Abstract Submitted
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Transport dynamics in membranes of photosynthetic purple bacteria¹ FELIPE CAYCEDO, FERNEY RODRIGUEZ, LUIS QUIROGA, Universidad de los Andes, FRANCESCA FASSIOLI, NEIL JOHNSON, University of Oxford — Photo-Synthetic Unit (PSU) of purple bacteria is conformed by three basic constituents: Light Harvesting Complex 2 (LH2) antenna complexes, where chromophores are distributed in a ring in close contact with carotenoids with a function of collecting light; LH1s, ring shaped structures of chromophores which harvest and funnel excitations to the Reaction Centre (RC), where photosynthesis takes place. Studies concerning a single PSU have been capable of reproducing experimental transfer times, but incapable of explaining the fact that architecture LH2-LH1-RC of photosynthetic membranes changes as light intensity conditions vary. The organization of antenna complexes in the membranes that support PSU seems to have its own functionality. A hopping model where excitations are transferred within a membrane is used, and populations of RC, LH1 and LH2 are investigated. Different statistics concerning arrival times of excitations that excite a single PSU are considered and compared with the global model where coordinates of a great portion of a membrane are included. The model permits in a classical basis to understand which parameters make photosynthesis in purple bacteria efficient and reliable.

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