

Excitonic interactions in biological systems: from the understanding to manipulation

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In biological systems, excitonic interactions among different chromophoric units are often used to control the photo-induced processes at the basis of the biological function. The complex network of interactions between the electronic and nuclear degrees of freedom of the chromophoric units as well as their coupling with the embedding protein make an accurate modeling of these processes very challenging. In this talk, we show that multiscale approaches based on the combination of quantum chemistry and classical models can represent a very effective strategy not only to achieve a detailed understanding of the excitonic process (and the role played by the protein) but also to suggest possible ways to manipulate it [1].

[1] C. Curutchet, B. Mennucci, Chem. Rev. **117**, 294 (2017).