



INPAC Lectures on Modern Trends in Nanosciences

***Protein-mediated electron transport:
when does the protein structure
matter, and why?***

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Coffee at 15h45

Celestijnenlaan 200D, room 05.11

Abstract:

Electron transfer through proteins proceeds over long distances via quantum mechanical tunneling. Theoretical analysis of these reactions reveals two distinct coupling limits. A protein structure insensitive regime arises when donor and acceptor are coupled through dynamically averaged multiple-coupling pathways. A structure dependent limit governs electron transfer partners coupled through a dominant pathway. This two regime paradigm provides a unified description of electron transfer rates in 26 chemically labeled heme and blue-copper proteins, as well as in photosynthetic proteins [1].