



The Abdus Salam
International Centre for Theoretical Physics



School on
NEW TRENDS IN QUANTUM DYNAMICS AND ENTANGLEMENT
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OUT OF EQUILIBRIUM, DRIVEN OPEN QUANTUM SYSTEMS

2. Conformational-Motion Induced Quantum Effects

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Abstract:

In this lecture we import the concepts of the previous lecture to a biological context. We analyze how quantum degrees of freedom that are mounted on a classically moving backbone structure such as a moving protein can be driven into entangled states, or may exhibit a genuine quantum advantage in their transport properties. From the perspective of quantum physics, we can thereby identify generic scenarios where biological systems may be able to generate quantum effects.