



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

3. The Avian Compass

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Abstract:

In this lecture we present a prime example of a process in which the state of few quantum degrees of freedom, namely of two spins, decides the outcome of a chemical reaction in presence of a magnetic field. We introduce the radical pair model of spin chemistry, and show how it is connected to the magnetic field sense of migrating birds. We furthermore provide evidence of how the presence of entanglement may enhance the sensitivity of such a magnetometer.