Analysis of Phase Space Geometry and Reaction Dynamics

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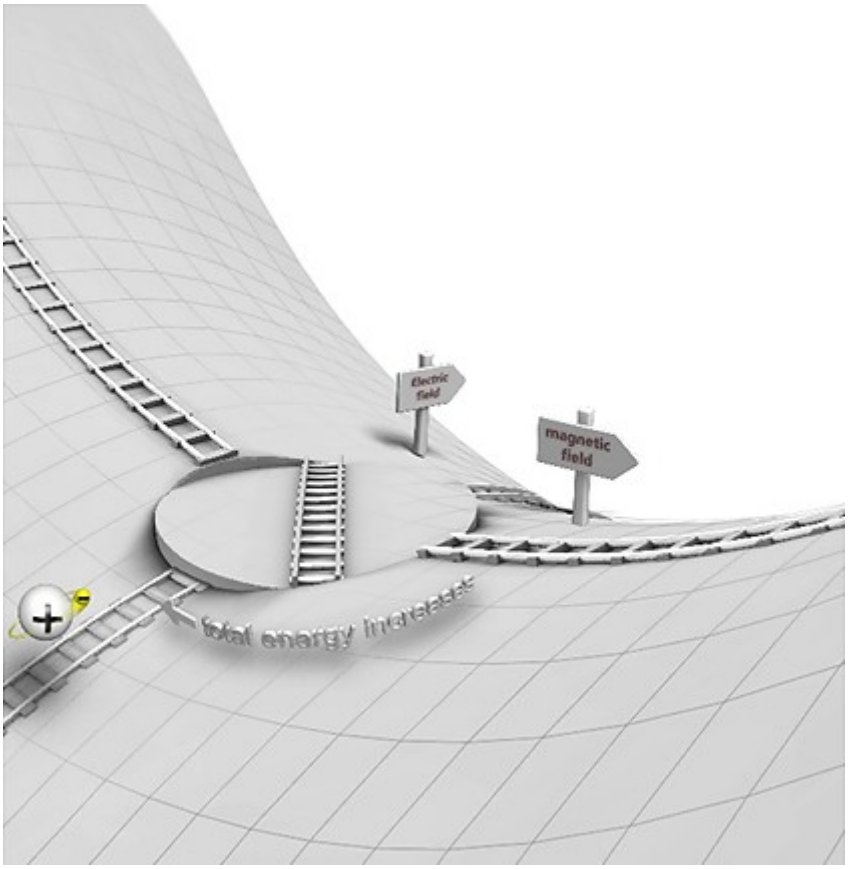

Schematic Picture to Describe Switching of Reaction Coordinates

Dynamical behavior of multi-dimensional chaos exhibits rich features through its time development on the phase space. These features not only become a basic mechanism of reaction processes but also provide us with a clue to realize how biomolecules such as proteins perform their functions within our body. In particular, our long-term goal is to reveal how energy flow is related with information processing in life. How, in a microscopic level, can we understand information processing and dissipation based on quantum mechanics? How, in a more macroscopic level, do molecules exhibit collective behavior which leads to molecular functions in life? We expect that we can obtain better understanding of live by analyzing various flows of energy, movement and information which take place in multiple scales of space and time.

Keywords : Phase Space Geometry, Multi-dimensional Chaos, Non-equilibrium Reaction Dynamics, Quantum Chaos, Molecular Function of Biomolecules