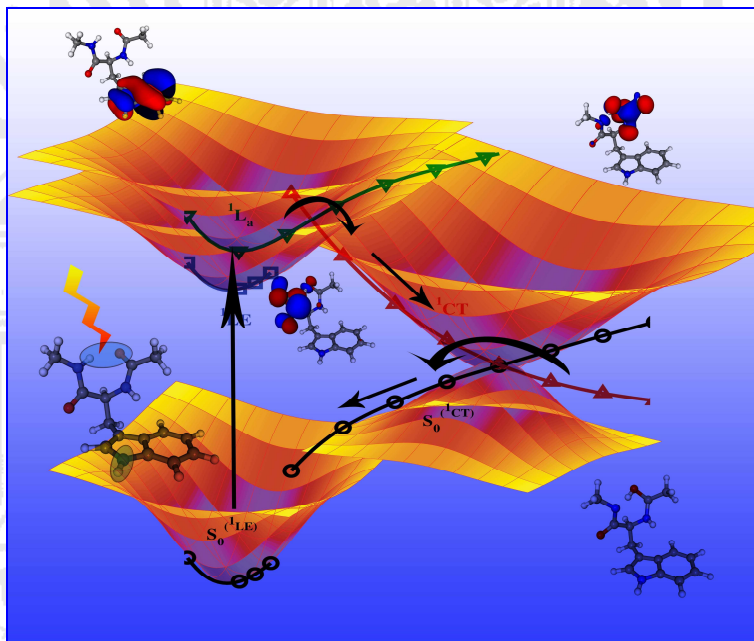


PHYSIKALISCHES KOLLOQUIUM

AM 24. JANUAR 2011 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



KONISCHE DURCHSCHNEIDUNGEN UND PHOTOSTABILITÄT DER BAUSTEINE DES LEBENS

PROF. DR. WOLFGANG DOMCKE

*THEORETISCHE CHEMIE,
TECHNISCHE UNIVERSITÄT MÜNCHEN*

Stability with respect to photochemical destruction by ultraviolet light is a decisive property of biological molecules. Recent excited-state electronic-structure calculations and time-dependent quantum wave-packet calculations of the nuclear motion have revealed the role of conical intersections of electronic potential-energy surfaces in the highly efficient excited-state deactivation in biological molecules such as DNA bases, DNA base pairs, aromatic amino acids and peptides. Evidence has been found that specific electron-driven proton-transfer processes, as schematically shown in the figure below, play a universal role in the photochemistry of biomolecules and biopolymers (DNA and proteins). These processes may be the origin of the exceptional photostability of these compounds which has led to their selection at the very beginning of the biological evolution.