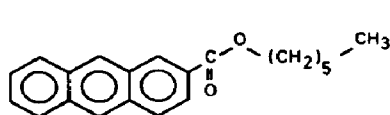
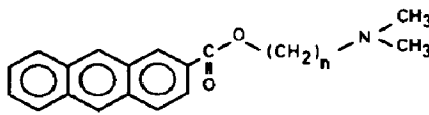


ization process was found to take place as well as the formation of exciplexes. In solutions of anthracene, 2-A(0) or 2-A(*n*) in acetonitrile or ethanol excited by a YAG–Nd laser (353 nm; pulse radiation, 3 ns; energy, 5 - 70 mJ), cation–electron pairs are formed. The photoionization process is biphotonic, the second photon being absorbed by an excited singlet state S.

This photoionization process was then used for the study of intermolecular and intramolecular charge transfers. An intramolecular charge transfer was shown to occur from the anthracene cation to the amino group at the opposite end of the molecule in the compounds 2-A(2) and 2-A(11). The influence of chain length on the rate of electron transfer enabled us to determine the mechanism of this transfer.



2-A(0)

2-A(*n*)

Photoionization of tryptophan in aqueous solution

GOTTFRIED KÖHLER, GOTTFRIED GRABNER, JOSEF ZECHNER and
NIKOLA GETOFF

*Institut für Theoretische Chemie und Strahlenchemie, Universität Wien, Währingerstrasse 38,
1090 Vienna (Austria)*

Photochemical formation of solvated electrons e_{aq}^- from neutral aqueous tryptophan at low light intensities was studied by quantitative determination of Cl^- ions resulting from the reaction of e_{aq}^- with 2-chloroethanol. Cl^- ion liberation at low scavenger concentrations (less than 10^{-2} M) results only from this reaction, since NO_3^- ions or tryptophan reduce the Cl^- ion yield by competition reactions for the electrons between the different scavengers in the system. For $\lambda_{\text{exc}} = 254$ nm a yield $Q(e_{\text{aq}}^-)$ of 0.021 ± 0.002 was found. This yield decreases similarly to the fluorescence yield after addition of Cs^+ ions as singlet quenchers. Electron ejection and fluorescence emission are competitive processes. Studies of excitation wavelength effects, especially on the fluorescence yield, gave no indication of processes originating prior to fluorescence when the excitation wavelength was longer than 248 nm.