tween dye triplets and halogen anilines is reported. The magnetic field effect on the yield of free radicals in these systems represents the first direct experimental evidence for sublevel-selective depopulation of triplet states in fluid solution at room temperature.

The mechanism described may induce magnetic field effects on any triplet reaction competing with sublevel-selective deactivation and can thus provide the basis of a general method to study the dynamics of short-lived triplet intermediates.

Kinetics of triplet sublevel selective photochemical reactions in the solid state

M. GEHRTZ, CH. BRÄUCHLE and J. VOITLÄNDER

Institute of Physical Chemistry, University of Munich, Sophienstrasse 11, D-8000 München 2 (F.R.G.)

A detailed description of the overall kinetics of photochemical reactions must deal with photophysical activation and deactivation rates as well as with true photochemical rates. On the basis of the hypothesis that the chemical reaction rates of the individual triplet zero field levels have different values for photoreactions involving the lowest excited triplet state, a method is presented for the evaluation of these rates from bulk measurements under steady state illumination conditions. The complications arising from the detection of solid state reactions are discussed, and a simple solution is given, illustrated by a numerical example.

Observation of triplet states of stilbene and related compounds in solution and analysis of the decay mechanism

H. GÖRNER and D. SCHULTE-FROHLINDE

Institut für Strahlenchemie im Max-Planck-Institut für Kohlenforschung, D-4330 Mülheim a. d. Ruhr (F.R.G.)

Transients formed by energy transfer from triplet donors to stilbenes and arylethylenes are observed in the 360 - 400 nm region by nanosecond laser pulse excitation. The transients (lifetimes in the 100 ns range) are assigned to the lowest triplet state of the arylethylenes rather than to 1,4-biradicals or exciplexes. From spectroscopic and kinetic results, including those from rigid model compounds of stilbene as a comparison, it is suggested that the triplet absorption