

solute (benzene). The compounds which were studied were  $C_6H_{12}$ ,  $C_6D_{12}$  and  $C_{10}H_{18}$ , with which both intensity and lifetime quenching experiments on the UV emission were performed. At variance with previous results, the quenching rate parameters obtained are consistent with a diffusional mechanism.

### **Effect of excited state switching on the photophysical characteristics of benzophenone and related molecules**

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The study of the phosphorescence emission of a series of aryl ketones in acetic acid solution at liquid nitrogen temperature has shown that it is possible in this solvent to vary the nature of the lowest triplet state progressively from a predominantly  $n,\pi^*$  configuration to a predominantly  $\pi,\pi^*$  or charge transfer (CT) configuration by changing the substituent from electron withdrawing to electron releasing in nature. This behaviour has been evidenced by the presence of two components in the low temperature spectra, which invert their positions according to the nature of the substituent. This state switching is responsible for the different photophysical characteristics of aryl ketones in fluid solution. In fact, only  $n,\pi^*$  triplets display phosphorescence emission and efficient sensitizing power, whilst ketones with CT triplets neither phosphoresce nor sensitize but act as quenchers of  $n,\pi^*$  triplet ketones.

### **Two-photon photoionization of substituted anthracenes from the $S_1$ state: application to the study of intermolecular and intramolecular charge transfer**

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Intermolecular and intramolecular deactivation of the excited states of the following compounds were studied by laser photolysis. Fluorescence quenching of the compounds 2-A( $n$ ) ( $n = 2, 11$ ) occurs through the formation of non-fluorescent (or weakly fluorescent) intramolecular exciplexes. In solution a photoion-