Temperature Dependence of the Photochemistry of Aryl Alkyl Ketones

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The photochemistry of several phenyl alkyl and p-anisyl alkyl ketones has been examined using laser flash photolysis and conventional quantum yield techniques. The methoxy-substituted ketones show higher activation energies (A£ ~ 3 kcal mol?1) for the Norrish type I and type II processes. It is concluded that both reactions are adiabatic processes occurring from the triplet n?* surface. In the case of p-methoxy-substituted ketones the upper n?* surface is reached from the low-lying ??* triplet, with the energy gap between both states reflected as an increase in the activation energy.