

Guest editorial

In 2000, the Editors and Publishers of the Journal of Photochemistry and Photobiology, Section A, initiated a series of Special Issues devoted to important themes in photochemistry, photobiology and photophysics. Proton transfer reactions are ubiquitous in all of chemistry, and photon-initiated proton transfer is the subject of this Special Issue of the Journal.

This Special Issue contains 11 invited papers from authors specializing in diverse areas of the photochemical sciences. The theorists are given the first words. Casey Hynes and colleagues argue that some current conceptions of excited state intermolecular proton transfer in solution need to be extended or replaced, and Sabastiao Formosinho and his group argue in favour of extending the intersecting state model to the electronically excited naphthols, often used as model compounds for proton transfer reactions. Theory and experiment are combined in the paper by Shin-ichi Nagaoka and co-workers who present new experimental results on intramolecular excited state proton transfer in *o*-hydroxybenzaldehyde and find support for the nodal plane model in this system.

The jet spectroscopists are then featured. Françoise Lahmani and co-workers described cyclic hydrogen-bonded complexes between *o*-cyanophenol and several protic and non-protic solvent molecules and identified intermolecular excited state proton transfer by observing fluorescence of the excited anion. Hiroshi Sekiya and colleagues describe excited state intramolecular processes in the photochromic molecule *N*-salicyclideneaniline and suggest that excited state proton transfer produces two keto isomers.

We then move to condensed media. Seiji Tobita and his colleagues described an interesting effect of *ortho*-alkylation on the excited state intermolecular proton transfer reactions of protonated aniline derivatives in aqueous solution.

Peter Wan and co-workers reported additional examples of those rare cases of excited state proton transfer to and from carbon atoms in organic molecules. S.K. Dogra and M.M. Balamurali extended the studies of the IIT Kanpur group on hydroxyphenyl-substituted benzazoles and benzimidazoles to the imidazopyridine system in solution. Jerzy Herbich, Jacek Waluk and their colleagues find evidence of phototautomerization in dipyrido[2,3-*a*:3'2'-*i*]carbazole in hydroxylic solids or at surfaces where it can form cyclic hydrogen-bonded solvates which undergo excited state double proton transfer. Linda Peteanu and her co-worker L.L. Premvardham used Stark spectroscopy in low-temperature glasses to measure and compare the electric dipole moment and average polarizability changes in several similar small *ortho*-substituted aromatic molecules which either do or do not exhibit intramolecular proton transfer.

This Special Issue is brought to a fitting conclusion by considering some of the photobiological aspects of photon-induced proton transfer. Jacob Petrich and co-workers described the excited state photophysics of two naturally occurring perylene quinones, hypocrellin A and hypomyacin B.

As Guest Editor, I wish to thank all those who accepted invitations to present papers in this special thematic issue of the Journal of Photochemistry and Photobiology devoted to photon-initiated proton transfer. The result has been gratifying and I hope it will constitute a worthwhile addition to the literature on the subject.

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