

Czech Chemical Society Lecture

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University Campus Bohunice, Kamenice 5, Building A11 / room 132

## Role of space and weak interactions on excited state processes

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### Abstract

From time immemorial, it is well known that curtailment of freedom often leads to changes in the behaviour of living beings including humans. Molecules are no different—similar restriction of freedom leads to selectivity in the chemical behaviour of molecules embedded in enzyme pockets. Extending these well-known concepts supramolecular chemists have established that even small molecules upon confinement in synthetic hosts exhibit behaviour distinctly different from the ones in an isotropic solution.

In this lecture the role of “medium” in bringing about changes in the well-established behaviour of excited molecules would be illustrated with select examples. Results of steady state and ultrafast experiments will be presented that highlight the role of confinement on the excited state dynamics of anthracene, stilbenes, azobenzenes and dienes. Another topic that would be touched upon, if time permits, is communication between molecules (electron and spin transfer) across a molecular wall.

The main message of the talk is that molecules like humans behave differently when confined, free space makes a difference. Space can be used as a tool to bring about selectivity in chemistry.

### References (Reviews)

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V. Ramamurthy, S. Jockusch and M. Porel, *Langmuir*, **2015**, *31*, 5554-5570

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V. Ramamurthy, P. Sen and C. G. Elles, *J. Phys. Chem. A* **2022**, *126*, 29, 4681–4699