

Introduction to papers dedicated to the seminar *New Horizons of Photochromism—From Design of Molecules to Applications*, held in Arras, France in October 2008

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NJC has been an essential partner of the seminar *New Horizons of Photochromism—From Design of Molecules to Applications*, held in Arras, France from 12–15 October 2008.

Its first important contribution was the *NJC* Poster Prize, which was awarded to Dr Tibor Kudernac (K. U. Leuven, Belgium and University of Groningen, The Netherlands) for the presentation entitled “Monolayers of photochromic switches: nanoscale probe of their functional properties”.

The second important contribution is this themed issue, which contains 21 articles, including 6 Letters and a Perspective. They have largely been submitted by attendants of the seminar, but also by other researchers involved in this topic. We would like to focus the readers' attention on the Perspective article by Y. Yokoyama, “Chiral photochromism based on 6 π -electrocyclization” (DOI: 10.1039/b823489b), which will surely become reference material.

In 1988, 72 papers were published on photochromism throughout the world.¹ 20 years later, 510 publications can be found for the year 2008 alone. More impressively, diarylethenes, a family of organic photochromic molecules discovered in 1988 by M. Irie, now generate more than 100 hits a year,² and nowadays, the word “photochromic” is gradually entering some non-specialized dictionaries.³

These achievements are mostly the results of synergetic collaborations between synthetic chemists, spectroscopists, theoreticians, *etc.* Photochromism involves the phototriggered switching of properties in (among others) the fields of

complexation, magnetism, electrochemistry, fluorescence, and linear and non-linear optics, and leads to surface changes or structuration in polymers and other materials. Applications as color changing systems have long been exploited, and now use in photon-mode memories and sensors are foreseen, with new horizons opening up in mechanical systems and biology. Photochromism is also involved wherever assembling, detecting, addressing and triggering on the nanoscale needs the help of light.

The ever expanding community of scientists working on organic photochromes have the opportunity to meet at the International Symposium On Photochromism (ISOP), the next event being held in Yokohama, Japan in 2010. An international research group on Photoswitchable Organic Molecular Systems and Devices (GDRI Phenics), lead by Dr Jean-Claude Micheau and recognized by France's Centre National de la Recherche Scientifique (CNRS), is also currently networking a number of research groups in France, Japan, China and Russia. In Japan, the priority area program New Frontiers in Photochromism: Novel Design and Performances, headed by Prof. Masahiro Irie, is playing an important role in this cooperation. Such background enables us to hold more frequent smaller scale bilateral seminars (Japan–France in 2006, France–Russia in 2007). The meeting in Arras was organized by the CNRS and the Japan Society for the Promotion of Science (JSPS) bilateral seminar program, with the help of other contributors,⁴ and was among the events commemorating the 150th anniversary

of the France–Japan relationship. It gathered 75 participants, not only from Japan and France, but also from China, Russia (GDRI Phenics members) and other European countries. 37 oral and 18 poster communications were presented, and stimulating discussion took place in a friendly and cordial atmosphere. Most of the contributions to this themed issue originate from Japan and France, but two of them have corresponding authors in Russia and Belgium.

We warmly acknowledge all the contributors to this themed issue, both authors and reviewers, and to Dr Denise Parent for her efficient and continuous support. We would also like to take this opportunity to thank the Co-chairman of the seminar, Prof. Yasushi Yokoyama, and all our colleagues who helped with its organization, especially the local committee's Chairman, Dr Guy Buntinx, and Secretary General, Dr Michel Sliwa.

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Notes

- 1 ISI Web of Knowledge.
- 2 117 in 2008, more than 100 each year continuously since 2005 (ISI Web of Knowledge).
- 3 For example, the Compact Oxford English Dictionary.
- 4 Organized by LASIR, LCOM and PPSM laboratories, supported by Université des Sciences et Technologies de Lille, Université Lille 2 Droit et Santé, Centre d'Études et de Recherches Lasers et Applications, Région Nord Pas-de-Calais, Conseil Général du Pas-de-Calais, Ville d'Arras, Bruker, TCI Europe, Hamamatsu and *NJC*.