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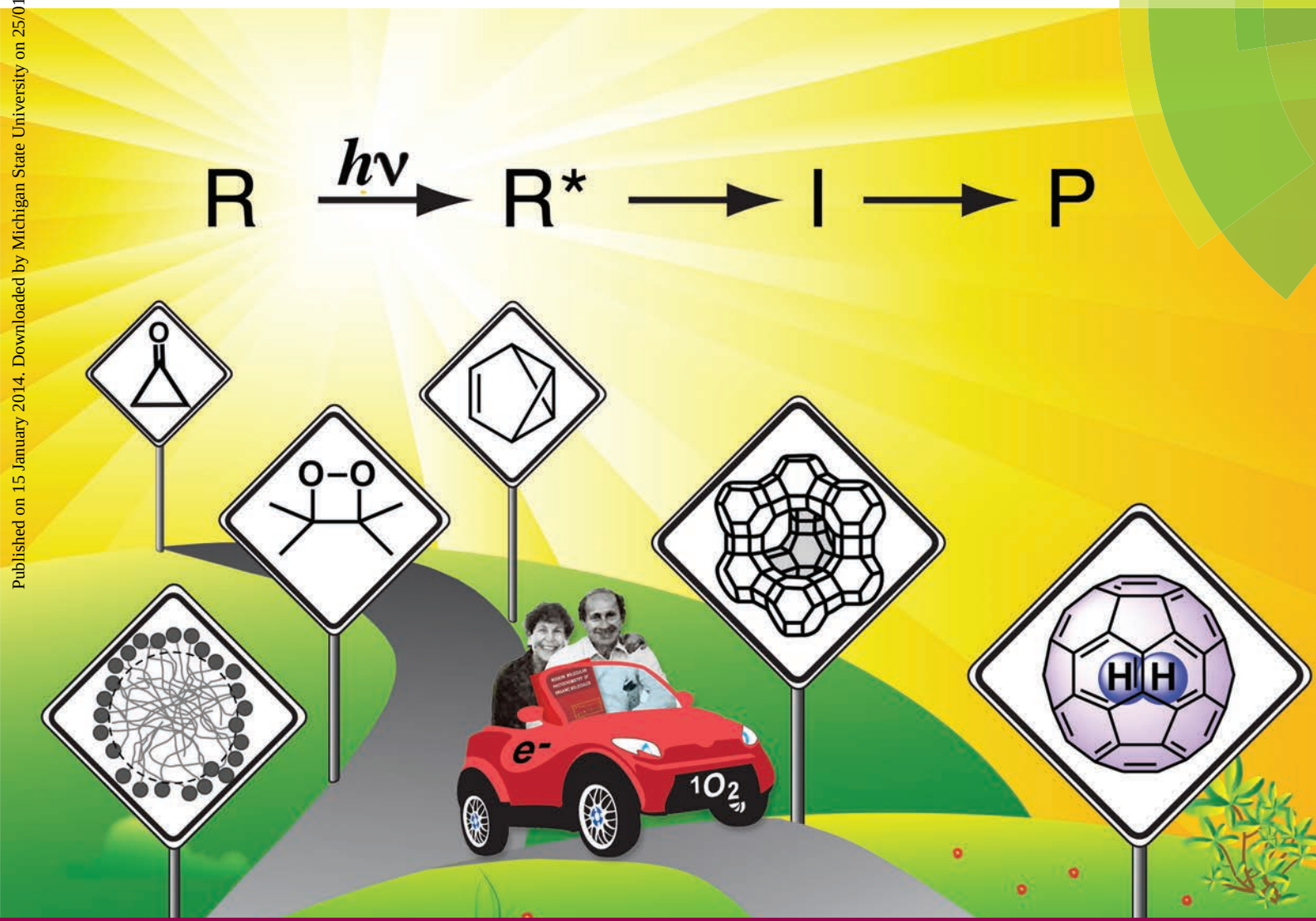

Themed issue: Dedicated to the memory of Professor Nicholas J. Turro

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EDITORIAL

The Turro legacy

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This issue of PPS is dedicated to the memory of Nicholas J. Turro, Professor of Chemistry at Columbia University, whose life was taken away by cancer on November 24, 2012. A memorial service attended by dozens of his colleagues, students, and admirers was held at Columbia University on May 11, 2013.

The articles in this issue reflect both the geographic diversity of scientists either directly or indirectly associated with Nick's laboratory and the breadth of scientific interests that emanated from his laboratory. The Turro lab attracted large numbers of young scholars seeking training in photochemistry. Approximately 80 Ph.D. students, 150 postdocs, and 200 undergraduates, as well as numerous visiting faculty and short term visiting scholars spent time in the Turro laboratories. His reputation attracted students and postdocs from all over the world (Asia: 68; Europe: 47; Americas: 110).

Nick Turro was a towering figure in the field of organic photochemistry for nearly five decades[1] and his influence promises to live on for many decades to come. Following his Ph.D. with George Hammond at Cal. Tech. and a one-year postdoc with P. D. Bartlett at Harvard, Nick burst on to the international scene in 1965, a year after his appointment as instructor at Columbia, with the publication of his book *Molecular Photochemistry*. Promoted to full professor in 5 years and elected to the National Academy at age 41, his rise to prominence in the chemical field was meteoric. He was the recipient of numerous awards including the Arthur C. Cope Award from the Organic Division of the American Chemical Society and the Porter Medal from the combined international photochemical societies, the highest awards presented by either group. He was selected to receive the inaugural Hammond Award from the Inter-American Photochemical Society shortly before his death.

The output of scholarship from the Turro laboratory was prodigious – nearly 1000 scientific articles, plus numerous reviews and two totally revised versions of his book. The most recent of these, coauthored with V. Ramamurthy and J. C. Scaiano, is destined to be the essential text and reference for the next generation of photochemists. A hallmark of Nick's scholarship was the frequent excursions into unexplored territory, usually with unexpected and rewarding results. Starting with cyclopropanone chemistry and continuing through supramolecular chemistry, even an abbreviated catalogue would be longer than any of the contributions to this issue of the journal. Fortunately, Nick authored highly readable summaries of his scientific excursions. These include 13 articles in *Accounts of Chemical Research* and 3 in *Chemical Reviews*. Autobiographical articles include a Perspective written for the *Journal of Organic Chemistry* in 2011[2] and a more personal history published in the *Inter-American Photochemical Society Newsletter* in 1998.[3]

In addition to the scientific record, Nick has provided us with a detailed description of the scientific method as it applied to his thinking about chemistry. Particularly revealing is an 1986 article in *Angewandte Chemie* in which Nick describes how he assimilated Piaget's ideas about intellectual development, Kuhn's ideas about effective paradigms, and Thom's ideas about the role of visualization along with Mislow's theories of organic stereochemistry into a modern view of organic chemistry.[4] Nowhere is Nick's love for the topological model more evident than in the development with Salem and Dauben of Salem's rules for photochemical reactions, diagrams for which dominate the second edition of his text, *Modern Molecular Photochemistry*. He pestered his physical and theoretical colleagues for simple models that he favored, such as Kasha's rule, el-Sayed's rule, or the Woodward–Hoffman rules and later sought the services of a "spin doctor" to help understand the complexities of radical pair behavior.

A brief passage from his 2011 *Journal of Organic Chemistry* article points to the origin of his passion for teaching in his own experience as a local boy attending a great New England liberal arts college, Wesleyan University. Asked by one of his chemistry teachers to think about what it takes to be a good teacher, Nick evidently found and remembered the right answer. Nick was as proud of his accomplishments and awards for exceptional teaching at the undergraduate level as he was of his research accomplishments and his training of research scientists.

No remembrance of Nick Turro would be complete without mention of his devotion to Sandy, his wife of 52 years, and his two daughters and their

families. Nick and Sandy treated all of the Turro group members as members of their extended family and greatly enjoyed the group reunions, which were held at the National ACS Meeting in Boston on the occasion of his 60th birthday and at Columbia on the occasion of his 70th birthday.

We are confident that the Turro legacy will live on through his students, associates, colleagues and the future generations that would be trained by those who were lucky enough to have been associated with him. Rarely does one come across an embodiment of an outstanding researcher, an excellent teacher, a motivating lecturer and a genuinely friendly and caring human being that Nick was. He will be remembered for his warmth in human interactions, depth and breadth in scientific research and dedication to teaching. Nick's passing is an enormous loss to science and all who knew him are sure to feel that they have lost a part of themselves. The collection of articles presented in this issue we believe is a fitting tribute to an exceptional scientist and a fine exemplar of an unparalleled human being.

We end this editorial with brief comments provided by several of Nick's students and postdocs, reflecting his personality and some photographs from different periods. Finally, we thank Prof. Frans de Schryver for encouraging the preparation of this memorial issue.

Christopher Dalton (Ph.D., 1967; Bowling Green State University, USA): "I was one of the five graduate students who joined Nick Turro's research group in 1965, his second year at Columbia. It was an exceptionally exciting environment to come of age as a photochemist. We experienced Nick's contagious enthusiasm for science not only during his daily tours of the lab and highly interactive group meetings but also when we discovered notes, left overnight on our desks ("Why don't you...."). The reasoning and analytical skills I learned from Nick proved highly transferable to my eventual university administrative career."

Bernhard Kräutler (Postdoc., 1978; University of Innsbruck, Austria) : "Getting to know Nick and his exemplary way of thinking about scientific problems, and how to tackle and solve them in a creative way, had a truly impressive effect. It was wonderful to explore the natural sciences with him from magnetic effects (as a postdoc) all the way to blue glowing bananas (as Professor of Organic Chemistry)."

Wen-Sheng Chung (Ph.D., 1990; National Chiao Tung University, Taiwan): "Nick was extremely organized with regards to literature and publications. Watching him visit the library every Saturday and annotate on related papers left a lasting influence on me. Monthly group 'Individual Research Review', presentations, and reports helped the group members develop into mature scientists. Nick's enthusiasm, energetics, and love for science and sports made our study at Columbia University fruitful, joyful and memorable."

Sivaguru Jayaraman (Postdoc., 2000–03; North Dakota State University, USA): "When I think of Turro, I think of a researcher with an aptitude to solve complex research problems with ease, novelty and depth. He was a teacher who believed in his students and helped them to excel in their studies by making them visualize concepts that are often difficult in chemistry. He was an easily approachable mentor, friend and colleague, be it for advice or for guidance. In short, he personified the word "teacher-scholar"."

Judy Chen (Ph.D., 2012; American Chemical Society, USA): "Boss has taught by example the way of life beyond science that lives on in the lives he's touched. It's about attitude; don't become frustrated but rise to the challenge! No matter the goals, it's the process that is important. Never pass judgment until you know the whole story, with science and especially each other."

Steffen Jockusch (Res. Associate, 1994–current; Columbia University, USA): "The Boss, as he was affectionately called by his research group, was a great mentor to his students. Over the 18 years I worked in his research group I witnessed how he shaped new arriving graduate students and postdocs into professional scientists when they left. His enthusiasm and unquenchable energy for science was a true inspiration. He never seemed to run out of ideas for experiments to tackle in new research projects, and was always pushing for the reading of the scientific literature before starting experiments."

Nicholas J. Turro in the 1960s.

Nicholas J. Turro in the 2010s.

Nicholas J. Turro with George S. Hammond and Sandra M. Turro (date unknown).

Nicholas J. Turro with the Chairs of Gordon Conference in Organic Photochemistry (1989).

The Turro group in the mid-1970s.

The Turro group in 2011.

Frederick D. Lewis, *Northwestern University*, *USA*

V. Ramamurthy, *University of Miami*, *USA*

Yoshihisa Inoue, *Osaka University*, *Japan*

Jochen Mattay, *Bielefeld University*, *Germany*

Guest editors

References

1 *Photochem. Photobiol. Sci.*, 2008, **7**, 1441–1443; A special issue dedicated to Nicholas J. Turro on the occasion of his 70th birthday, for details about scientific accomplishments of Turro see the editorial.

2 N. J. Turro, *J. Org. Chem.*, 2011, **76**, 9863–9890.

3 N. J. Turro, *Inter-American Photochemical Society Newsletter*, 1998, **21**(2), 56–77.

4 N. J. Turro, *Angew. Chem., Int. Ed.*, 1986, **25**, 882–901.