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8th International Conference on Semiconductor Photochemistry:

Selected contributions

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This Special Issue of Journal of Photochemistry and Photobiology A: Chemistry gathers a selection of papers presented at the 8th International Conference on Semiconductor Photochemistry (SP8), held at the Pavillon Joséphine in the heart of the Orangerie Park in Strasbourg, France, on September 11-15 2023 (Figure 1). The SP8 conference was organized by the Institut de chimie et procédés pour l'énergie, l'environnement et la santé (ICPEES), under the auspices of the French national center for scientific research (CNRS) and the University of Strasbourg.



Figure 1. Group photo of the 8th International Conference on Semiconductor Photochemistry (SP8), Pavillon Joséphine, Orangerie Park, Strasbourg, France.

Since its launch by Prof. Andrew Mills and Prof Peter Robertson in 2001 in Glasgow, the SP international conference series devoted to semiconductor photochemistry and photocatalysis has travelled around Europe, being hosted successively in Aberdeen (2007), Glasgow (2010), Prague (2013), Saint Petersburg (2015), Oldenburg (2017) and Milan (2019), and in Strasbourg in 2023 after a four-year break caused by the COVID-19 pandemic.

The conference attracted 210 participants from more than 35 countries, with a program including 6 world-renowned invited speakers who delivered stimulating plenary lectures, 5 keynote speakers, 54 regular oral communications and 175 posters. 34 PhD students and young researchers had the opportunity to highlight their works and advertise their posters as flash oral talks during three dedicated sessions.

The contributions covered a span of topics related to semiconductor photochemistry and photocatalysis, including the design and characterization of novel single- and multi-component materials, the synthesis of hydrogen carriers, solar fuels and chemicals, the photochemical

reaction engineering, *operando* and *in-situ* characterization, modelling and mechanistic studies, photocatalytic surfaces, air and water remediation, and solar-to-electricity conversion.

For the first time in the SP conference series, SP8 was introduced by a topical school attended by 82 PhD students and young researchers, in which a wide span of basics and applications of semiconductor photochemistry were reviewed. In particular the metrics and common misconceptions in determining photocatalyst efficiency, the band structure characterization and the theoretical modelling of semiconductors, the *in-situ/operando* characterization of photocatalysts, the plasmonics applied to light-driven catalytic reactions, the *in-situ* transmission electron microscopy applied to light-induced processes, and the energy applications of photocatalysis and photoelectrochemistry were discussed. The SP8 chairs would like to thank the organizing committee of the SP8 topical school, that was composed of PhD students and young researchers originating from labs in Antwerp, Belfast, Cambridge/Naju, Gdansk, Ljubljana and Madrid.

The non-exhaustive collection of articles gathered in this Special Issue covers various fields of interest discussed in SP8, namely the synthesis of novel materials for photocatalysis [1-3], the study of novel Cu-based photocathodes [4], the photocatalytic degradation of pharmaceuticals [5,6], plasmonic photocatalysis [7], and photocatalysis for oxygen detection [8].

The SP8 chairs would like to thank the Université de Strasbourg and its IdEx Initiatives d'Excellence program, the Région Grand Est, the French national center for scientific research, the French network on Solar Fuels and the European Association of Photochemistry (EPA) for financially supporting the conference. Additionally, SP8 was financially supported by a span of publishers, namely The Royal Society of Chemistry (RSC), Springer, MDPI and Bentham Science, as well as by a set of companies Blackleaf, SINTEF, PhaseTech and Verlabo2000. The SP8 chairs are grateful to the local organizing committee and to the *Cellule Congrès-Formation* at the University of Strasbourg, for their involvement in the preparation of SP8 and during the conference itself. Special thanks should be given to the members of the International Scientific

Committee of the SP series for their support and their active promotion of SP all over the world. Lastly, the guest editors wish to express their gratitude to all the authors and reviewers for their contributions to this Special Issue and to thank the editorial staff of Journal of Photochemistry and Photobiology A: Chemistry for assistance.

See you in September 2025 in Madrid, Spain, for SP9 – the 9th International Conference on Semiconductor Photochemistry!

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