

# Editorial



Mathilde Lachia

## Welcome to the One Electron World

Dear CHIMIA readers,

Single electron processes play an important role in biological processes. The unique and extreme reactivity of a single electron is controlled precisely to allow redox signaling or metabolism of oxygen. This inspired chemists to develop tools to access and control the very reactive single electron species and we are still exploring this 'One Electron World'.

Syngenta Crop Protection Research Center in Stein had the opportunity to host last October a fantastic and emulating symposium on single electron chemistry in collaboration with Swiss Chemical Society (SCS) (<https://syngenta19.chemistrycongresses.ch/en/>). It was a full day of cutting-edge lectures from internationally renowned speakers from academia and industries, discussing various aspects of single electron chemistry. This CHIMIA special issue is aiming to show some aspects of this research area.

Amandine  
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We are honored to share with you some recent advances presented by six chemists in this field: **Prof. Samir Zard** illustrates the incredible diversity of amino acid scaffolds accessible *via* xanthate radical chemistry, stimulating the creativity for accessing complex structures in a simple and scalable manner. Then **Prof. David Procter** describes progress in the field of radical reactions mediated by  $\text{SmI}_2$ . The work consists in the extension of the scope of reducible carbonyl moieties to esters and amides where the resulting ketyl-radical can be exploited in radical cascade reactions. Then, **Dr. Fabrice Denes** gives an overview on how radicals can be used for late stage functionalization *via* intermolecular hydrogen atom transfer. **Prof. Philippe Renaud** and his team report investigations on radical reactions of boron-ate complexes and their ability to undergo subsequent anionotropic rearrangement. The journey continues with **Dr. Andreas Hermann** who shows a very complete study around photochemistry of 2-oxoacetates where he describes the mechanistic aspects followed by their applications for slow release of fragrance. Finally, **Prof. Robert Francke** describes progress in the field of electrosynthesis and sets very well the challenges related to it such as the kinetic inhibition of the electron transfer, the restriction of electrosynthesis to redox reaction or the use of supporting electrolyte additives which can be overcome by microflow reactor elaboration.

The journey through the 'One Electron World' has only started and we hope that this collection of articles in this special issue will stimulate your appetite for this field.

This Special Issue could only be realized thanks to the high engagement and commitment of the authors and the CHIMIA technical editors. We would like to express our great and sincere acknowledgments to them and wish you enjoyable and informative reading.

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The Editorial Board expresses its warmest thanks to the coordinating guest editors Dr. Mathilde Lachia and Dr. Amandine Kolleth-Krieger for their efforts in planning and collating this attractive variety of contributions and authors on the topic of 'SCS-Syngenta Symposium: Welcome to the One-Electron World'.