

Supercharged!

Rosalba A. Rincón^{*[a]} and Greta Heydenrych^{*[a]}

Nobel News

What a year 2019 has turned out to be for batteries! On 9th October 2019, John B. Goodenough, Stanley Whittingham, and Akira Yoshino were jointly awarded the Nobel Prize in Chemistry for “the development of lithium-ion batteries”. “They created a rechargeable world.” (Quotations from the [2019 Chemistry Nobel Prize press release](#).) Whittingham designed the first lithium-ion battery by using a titanium disulfide cathode and a metallic lithium anode. The battery had a good power output—too good, as it tended to explode, due to the metallic lithium anode. Goodenough took this initial idea a step further by showing that metal oxides, in particular cobalt oxide, would perform better. This concept was then developed by Yoshino, who improved the anode and created a light-weight battery that could be charged hundreds of times, thus making lithium-ion batteries commercially viable.

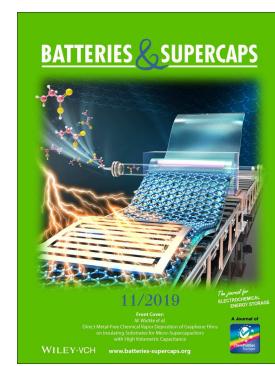
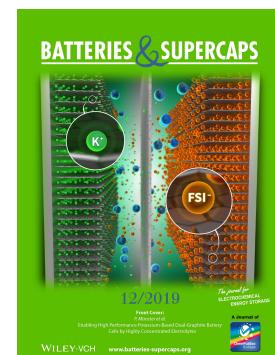
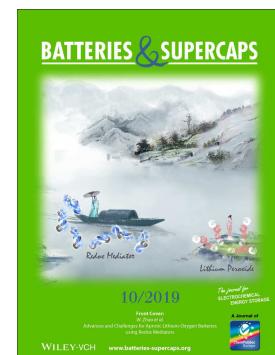
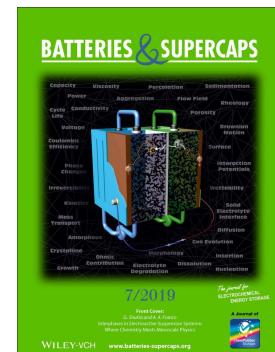
In honor of this, we prepared a collection together with our sister journals *ChemElectroChem*, *ChemSusChem*, *ChemPhysChem*, *Energy Technology* (and many more) to showcase the work we have published in the area by the laureates and other key players in the field. You can browse these papers at [Lithium-Ion Batteries](#).

But Wait, There's More!

Today, secondary batteries are ubiquitous. When one of us goes on an evening ride with her bike, she has no fewer than nine rechargeable batteries with her: four for shifting, two for lighting, phone, bike computer, and watch. However, consumer electronics is only the tip of the iceberg when it comes to the demand for secondary batteries. As the automotive industry is poised to making the transition to battery-fueled cars, the need for raw materials will explode. Sadly, many of these raw materials, most notably cobalt, are quite scarce and are often mined under inhuman conditions. Thus, research in electrochemical energy storage is important for many reasons and there is an urgency to the endeavors of this community that is driven by tangible problems that affect our daily lives.

[a] Dr. R. A. Rincón, Dr. G. Heydenrych
Wiley-VCH Verlag GmbH & Co. KGaA
Batteries & Supercaps
Boschstrasse 12
69469 Weinheim (Germany)
E-mail: batteries@wiley-vch.de
Homepage: <http://batteries-supercap>

Key emerging areas that are at the forefront of research in electro-chemical energy storage include designing cathode materials that are less dependent on scarce raw materials, anodes that enable the best ion mobility without being hazardous, and electrolytes that promote ion transport, again without being hazardous or undergoing non-reversible reactions, thus building batteries that have as high as possible an energy density using as few resources as possible, using procedures that do not rely on complicated materials syntheses. To speed-up the discovery and development of battery materials, artificial intelligence is emerging as a powerful tool. At the other end of the battery's life cycle, attempts are made to enable and optimize battery recycling, either through reconditioning or, more promising but not trivial at all, recycling the individual components and materials. These are all exciting developments and one of the perks of editing *Batteries & Supercaps* is that we have ringside seats to see these developments unfold.



The visibility of *Batteries & Supercaps* has been further enhanced by its inclusion in Web of Science (owned by Clarivate Analytics); You

can now find all of our published articles there! As with all new journals, *Batteries & Supercaps* has been included in the Emerging Sources Citation Index. Titles in this collection do not yet qualify for an impact factor but provided that they show good and consistent development, they get promoted to the Science Citation Index Expanded, whose titles do receive an impact factor each summer. With your further help and support of *Batteries & Supercaps* this is therefore just a matter of time!

Special Collections

During the course of the past year, we have started a few Special Collections on topics that are of particular interest for the readers of *Batteries & Supercaps*. These can be found on our [homepage](#) under the tab "Special Collections" and include contributions from our [Editorial Board](#) and articles on [SEI and Interphases](#) and [Metal–Air Batteries](#). One collection is dedicated to 2019 European Materials Research Society's spring meeting, which took place in Nice (France) in May 2019, with articles based on work presented at the [Symposium on Batteries and Supercapacitors](#). We also have a Special Collection on [2D Energy Storage Materials](#), which we have set up together with our sister journal *ChemSusChem*, hosted on their [homepage](#). 2020 promises several more projects that are already in the pipeline, including Special Collections dedicated to [Electrolytes for Electrochemical Energy Storage](#), [Lithium-Anode Processing and Interface Engineering](#), and much more, so be sure to bookmark our [homepage](#) and check in regularly for new developments.

Change is Coming...

Our world is changing rapidly. More than ever, humankind needs advances in science to address global issues such as climate change, energy consumption and better healthcare for a growing population. Advances in chemistry will be key to providing solutions to these challenges. In order to adapt to

this ever-shifting research landscape, ChemPubSoc Europe is transforming.

ChemPubSoc Europe is an association of 16 chemical societies from 15 European countries, representing over 75 000 chemists. Together, these societies co-own and publish 15 scholarly journals covering all chemistry disciplines including *Batteries & Supercaps*, giving you, the researcher, greater choice than ever in where to publish your work.

As your research world continues to evolve, ChemPubSoc Europe is excited to be transforming with it. It's reshaping its story to both embrace and impact the future of chemistry, to meet your research needs and to give you the best opportunity to share your amazing work with the world.¹

Chemistry—*A European Journal*, the societies' flagship publication, celebrates its 25th birthday this year. On that day—31st March 2020—ChemPubSoc Europe will be unveiling its new identity and strategy for the future. Watch out for future announcements!

We are also excited to announce a new service by Wiley and other leading publishers: [GetFullTextResearch](#), or GetFTR for short. GetFTR is a one-stop platform to obtain full-text articles from all the participating publishers via a single-sign-on logon based on institutional credentials that is independent of your log-on location, the browser you are using and without the need for additional software. Even if you normally would not have access to a specific journal, you would still get access that goes beyond the abstract only. GetFTR will go live early in 2020—we will keep you updated on the details through our usual communication channels.



Table 1. Most-read reviews and articles at *Batteries & Supercaps* during October 2018–September 2019. The title can be clicked for access.

Authors	Title	Article type
Mega Kar et al.	Mg Cathode Materials and Electrolytes for Rechargeable Mg Batteries: A Review	Review
Unyong Jeong, Soojin Park et al.	Recent Progress in Stretchable Batteries for Wearable Electronics	Review
Youngsik Kim et al.	A New Rechargeable Seawater Desalination Battery System	Communication
Kah Chun Lau, Dongsheng Geng, Xiangbo Meng et al.	Atomic and Molecular Layer Deposition for Superior Lithium–Sulfur Batteries: Strategies, Performance, and Mechanisms	Review
Min-Kyu Song et al.	Metal–Organic Frameworks for High-Energy Lithium Batteries with Enhanced Safety: Recent Progress and Future Perspectives	Review
Zongping Shao et al.	Recent Advances in Metal–Organic Framework Derivatives as Oxygen Catalysts for Zinc–Air Batteries	Review
Mihai Duduta et al.	Ultra-Lightweight, High Power Density Lithium-Ion Batteries	Communication
Ho Seok Park, Bao Yu Xia et al.	Recent Progress on Transition Metal Oxides as Bifunctional Catalysts for Lithium–Air and Zinc–Air Batteries	Minireview
Jia-Qi Huang, Qiang Zhang, Xiqian Yu et al.	Safe Lithium–Metal Anodes for Li–O ₂ Batteries: From Fundamental Chemistry to Advanced Characterization and Effective Protection	Review
Yang Xia, Xinhui Xia et al.	Multiscale Porous Carbon Nanomaterials for Applications in Advanced Rechargeable Batteries	Review

Preprints

As a reminder, *Batteries & Supercaps* is considering manuscripts that have previously been posted on a not-for-profit, subject-based preprint server such as arXiv, bioRxiv, or ChemRxiv. The leading preprint server for chemistry, ChemRxiv, is co-owned by the American Chemical Society (ACS), the Chemical Society of Japan (CSJ), the Chinese Chemical Society (CCS), the German Chemical Society (GDCh, a co-owner of *Batteries & Supercaps*, along with other European chemical societies), and the Royal Society of Chemistry (RSC). *Batteries & Supercaps'* [Preprint Guidelines](#) provide detailed advice on integrating preprinting with traditional scholarly publishing. To ensure a fluid submission process at *Batteries & Supercaps*, authors are asked to keep the following points in mind regarding preprinting: 1) only the submitted version of a manuscript may be posted on a preprint server; 2) always

declare preprints associated with submitted manuscripts; 3) no further revisions may be made to a preprint after submission; 4) Preprints do establish precedence and do require acknowledgement. Accordingly, manuscripts submitted to *Batteries & Supercaps* must cite relevant preprints that have a bearing on the work, whether posted by the submitting author or another researcher.

To keep up to date with these and other developments at *Batteries & Supercaps*, you can also follow us on [Twitter @Batt_Supercaps](#).

Finally, a big thank you to all of our authors, reviewers, and readers, for your trust and support of our young journal. With your continued enthusiasm, 2020 is set to be a great year for *Batteries & Supercaps*!

Change is coming

Our world is changing rapidly. More than ever, humankind needs advances in science to address global issues such as climate change, energy consumption and better healthcare for a growing population. Advances in chemistry will be key to providing solutions to these challenges. In order to adapt to this ever-shifting research landscape, **ChemPubSoc Europe is transforming.**

Chemistry – A European Journal, the societies' flagship publication, celebrates its 25th birthday this year. On that day – 31st March 2020 – **ChemPubSoc Europe will be unveiling its new identity and strategy for the future.** Watch out for future announcements!

ChemPubSoc Europe

- 16 chemical societies
- From 15 European countries
- Who co-own 15 scholarly journals
- And represent over 75,000 chemists
- With 72 Fellows recognized for excellence in chemistry
- 11 million downloads
- 9,000 articles published

