Special Issue

Advances in Recycling and Upcycling of Spent Lithium-Ion Batteries

Message from the Guest Editors

The rapid increase in demand for lithium-ion batteries (LIBs) for use in consumer electronics and electric vehicles (EVs) has led to serious concerns regarding the materials and environmental sustainability of wasted LIBs. Despite the benefits of enhanced LIB deployment, such as the lowering of carbon dioxide emissions and a reduction in the reliance on fossil fuels, spent LIBs containing metal elements (Li, Co, Ni, Mn) and flammable organic electrolytes are harmful to the environment if not disposed of or treated properly. It is therefore essential to develop an effective waste management plan for end-of-life LIBs that can mitigate environmental risks while also effectively recycling valuable materials. Therefore, this Special Issue focuses on advancements in the recycling of battery materials by highlighting innovative spent battery material separation processes, advanced resource regeneration technologies, the direct recycling of battery electrode materials, the modeling and analysis of economic and environmental impacts, and novel designs that enhance the sustainability of batteries and the integration of a circular economy.

Guest Editors

Dr. Hongpeng Gao
Program of Materials Science and Engineering, University of California, La Jolla, San Diego, CA 92093, USA

Dr. Qizhang Yan
Wildcat Discovery Technologies, San Diego, CA 92121, USA

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MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
batteries@mdpi.com

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Take the opportunity to publish your original scientific work or a review paper concerning battery materials, battery technology or battery application within this new open access journal. Along with material science, the journal also addresses engineering and multidisciplinary research topics, such as cell and system design or storage system integration. Publishing proffers visibility for the benefit of other experts and facilitates discussion of the research results within the field. You are invited to publish your work, read published papers and to participate in topical discussions.

Editor-in-Chief

Prof. Dr. Karim Zaghib
Department of Chemical and Materials Engineering, Concordia University, Montréal, QC H3G 1M8, Canada

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