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Materials for Organic and Perovskite Solar Cells

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Message from the Guest Editor

In recent years, extensive research efforts have been devoted to organic photovoltaics (OPVs) and perovskite solar cells (PSCs) emerging technologies. Both have the potential advantages of being low-cost, lightweight, bendable, and aesthetically attractive. While OPVs commercialization has already been recently launched, the younger yet more efficient PSCs technology still needs some critical concerns, namely the toxicity of lead (Pb) and the mediocre stability of PSCs, to be overcome before they can enter the market. Both still need further development from the materials perspective and device processing point of view to enhance their performance up to the theoretical limit, to boost their environmental stability, and to replace their toxic constituents with less harmful alternatives.

- Organic semiconductors
- Pb-based and Pb-free perovskites
- Charge selective contacts
- Electrodes and substrates
- Photovoltaic architectures
- Computational modeling and machine learning
- Advances in synthesis, thin-film deposition, and characterization
- Structure-property relationships
- Metal oxides
- Perovskite nanocrystals
- Electronic interactions at the photovoltaic interfaces

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