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Developments in Perovskite Solar Cells

Guest Editor:

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Message from the Guest Editor

Ever since the first perovskite solar cell was reported by Miyasaka et al. in 2009 with an efficiency of 3.8%, perovskite solar cells have rapidly become a hot research topic as a promising photovoltaic technology due to their significant potential for high efficiency and low production costs. Furthermore, perovskites are a versatile material that allows for high tunability compared to conventional silicon-based solar cells. Single-junction perovskite solar cells have since surpassed 25% with the highest perovskite-based tandem device (perovskite/silicon) over 32%. This Special Issue is open to a broad range of topics within the perovskite solar cell field, including but not limited to the following:

- Long-term stability
- Lead-free non-toxic solutions
- Deposition methods and techniques
- Tandem and multijunction devices
- Commercialization aspects
- Perovskite materials characterization
- Perovskite nanocrystals, quantum well, or quantum dots
- Reverse bias, hysteresis, and ion migration studies
- Interfaces and surface recombination
- Electron and hole transport materials
- Machine learning, deep learning, and artificial intelligence