



an Open Access Journal by MDPI

High Stability Perovskite Solar Cell: Progress and Prospects

Guest Editors:

Prof. Esidor Ntsoenzok

CNRS-CEMHTI, Orleans, France

Prof. Dr. Anne Migan-Dubois

Université Paris-Saclay,
CentraleSupélec, CNRS,
Sorbonne Université, GeePs, Gif
Sur Yvette, 91192, France

Dr. Hicham Labrim

National School of Applied
Sciences, Ibn Tofaïl University,
Kenitra, Morocco

Deadline for manuscript
submissions:

20 November 2024

Message from the Guest Editors

Dear colleagues,

Commendable progress has been made as far as the solar-to-electricity conversion efficiency of perovskite solar cells (PSCs) is concerned. In comparison to conventional silicon solar cells, PSCs are lightweight, flexible, inexpensive to produce, and easy to fabricate. Power conversion efficiencies up to 26.1% for n-i-p, 25.4% for p-i-n single junction, and 33.9% for perovskite/Si tandem have been achieved. However, the efficiency cannot be retained for long as a result of the degradation of the photoactive perovskite layer or other components of the device. Various factors have been identified to contribute to this degradation, which include oxidation, hydration, phase segregation, ion migration, charge trapping, and exposure to UV light, high temperatures, and mechanical stress. Therefore, efforts to suppress degradation in PSCs have focused on techniques aimed at passivating defects in the photoactive layer through nucleation and crystallization control, together with proper design of charge transport layers, interface engineering, and dimensional tailoring.





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), PubMed, PMC, Ei Compendex, CaPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

Journal Rank: JCR - Q1 (Metallurgy and Metallurgical Engineering) / CiteScore - Q2 (*Condensed Matter Physics*)

Contact Us

Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/materials
materials@mdpi.com
[X@Materials_Mdpi](https://twitter.com/Materials_Mdpi)