



Contribution ID: 3

Type: Oral

Hybrid Organic–Inorganic Perovskites Materials: A review on Architecture and Stability for Power Conversion Efficiency

Abstract

In the past decade, solar technology has emerged with the three competing technologies of crystalline semiconductors, polymeric and carbon nanostructures based. These technologies face challenges that include cost and conversion efficiency. More recently, hybrid organic–inorganic perovskite (HOIP) materials have been proven as promising for new technologies of cost-effective solar cell devices. Due to their tunable band gap, low temperature processing and abundant elemental constituents, in combination with their flexibility and simplicity of fabrication methods, hybrid perovskite materials allow us to reach an impressive power conversion efficiency (PCE) of 35.3%. In this review, we discuss the importance of perovskite film preparation, characterization and properties in achieving high performance HOIP photovoltaic cells. The review also focuses on highlighting the post-deposition and thermal annealing treatments.

Primary author: Dr ZONGO, Sidiki (1. Department of Physics, Université Joseph KIZERBO, 03 PO. BOX 7021 Ouagadougou 03- Burkina Faso// 2. Materials Research Department, iThemba LABS, PO. BOX 7131, Cape Town-South Africa)

Co-authors: Prof. BERE, Antoine (1-Department of Physics, Université Joseph KIZERBO, 03 PO. Box 7021 Ouagadougou 03- Burkina Faso); Prof. SAHRAOUI, Bouchta (Institute of Sciences and Molecular Technologies of Angers MOLTECH Anjou - UMR CNRS 6200, University of Angers, UFR Sciences 2 Bd Lavoisier 49045 ANGERS cedex 2, France); Mr NEBIE, Jacques (1. Department of Physics, Université Joseph KIZERBO, 03 PO. BOX 7021 Ouagadougou 03- Burkina Faso); Prof. MAAZA, Malik (Materials Research Department, iThemba LABS, PO. BOX 7131, Cape Town-South Africa); Dr KAM, Sié Zacharie (1-Department of Physics, Université Joseph KIZERBO, 03 PO. Box 7021 Ouagadougou 03- Burkina Faso); Dr DAHO, Tizane (1-Department of Physics, Université Joseph KIZERBO, 03 PO. Box 7021 Ouagadougou 03- Burkina Faso)

Presenter: Dr ZONGO, Sidiki (1. Department of Physics, Université Joseph KIZERBO, 03 PO. BOX 7021 Ouagadougou 03- Burkina Faso// 2. Materials Research Department, iThemba LABS, PO. BOX 7131, Cape Town-South Africa)