
HL 36: Invited Talk Gary Hodes

Time: Tuesday 12:30–13:00

Location: POT 081

Invited Talk HL 36.1 Tue 12:30 POT 081
Organic-inorganic perovskite solar cells: The new generation of PV — ●GARY HODES — Department of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel

The organic-inorganic perovskite solar cells, typified by the most commonly-studied material – methyl ammonium lead iodide – are approaching 16% conversion efficiency in the approximately four years that they have been investigated. Apart from their extraordinarily high efficiencies for such a new type of cell, they also have the advantages of containing no rare elements and can be made with very low

energy input (close to room temperature preparation from solution).

In this talk I will discuss the main properties of these perovskites that make them such good photovoltaic materials. The cell operation mechanism – in general they are p-i-n solar cells – will be treated, taking into account that there are several different cell structures. The relatively-high effective diffusion lengths of electrons and holes in the perovskites are one of its favourable properties. Another is the high fraction of the bandgap that can be regained as open circuit photovoltage (typically between 65 and 70%). High voltage cells giving > 1.5 V for a bandgap of 2.3 eV will also be described.