

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India



Community solar parking lot based on perovskite solar roof

Overview

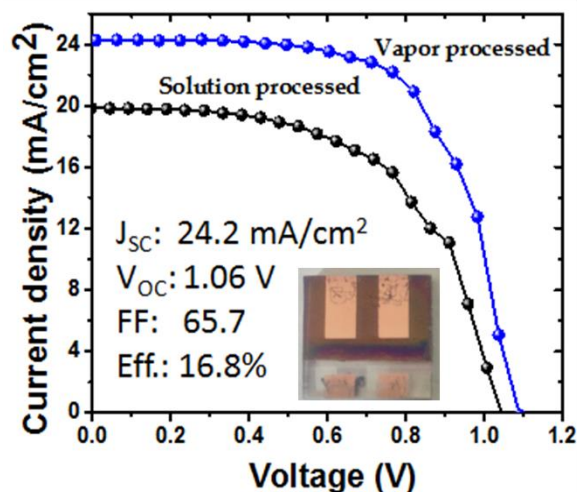
The most promising technology for conversion of solar energy into electricity (renewable energy generation) and most widely commercialized technology include silicon (Si) solar technology, where recent advancements offers low manufacturing costs. Though Si photovoltaic technology has its high ground processing cost and difficult in manufacturing is still a bottleneck. To overwhelm the difficulty lot more alternative materials were fabricated and tested for better conversion efficiency. Among all 3rd generation organic-inorganic metal halide perovskite solar cells (PSCs) shown promising results with high power conversion efficiency (PCE), ease of fabrication cost with effortless fabrication techniques. Initial experiments started with a lab scale (15mm × 15mm PSC device dimension) conventional PSC device fabrication with the PCE of 16.2% as shown in Fig.1(a & b).

Key Features

- Tunable band gap and visible light transmittance
- Ease of fabrication process
- Non-vacuum based fabrication process

Potential Applications

- Automobile (auxiliary power generation)
- Off-grid power generation



Major Patents/Publications

- Glass-to-glass encapsulation with ultraviolet light curable epoxy edge sealing for stable perovskite solar cells, *Materials Letters*, 250 (2019) 51–54.
- Hole-conductor free ambient processed mixed halide perovskite solar cells, *Materials Letters*, 245 (2019) 226-229.

Intellectual Property Development Indices

IPDI*	1	2	3	4	5	6	7	8	9	10
Status										

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