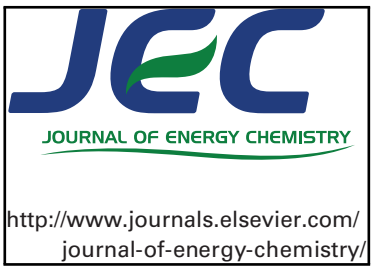

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Guang Yang , Pingli Qin , Guojia Fang , Gang Li

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Perspective

Tin oxide (SnO_2) as effective electron selective layer material in hybrid organic-inorganic metal halide perovskite solar cells

Guang Yang[a,b,c], Pingli Qin[a,b], Guojia Fang[c], Gang Li[a,b,*]

[a]*The Hong Kong Polytechnic University Shenzhen Research Institute, Shenzhen 518057, Guangdong, China*

[b]*Department of Electronic and Information Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, China*

[c]*Key Laboratory of Artificial Micro- and Nano-structures of Ministry of Education of China, School of Physics and Technology, Wuhan University, Wuhan 430072, Hubei, China*

[*] Corresponding author.

E-mail address: gang.w.li@polyu.edu.hk (G. Li).

ABSTRACT: The emergence of hybrid organic-inorganic metal halide perovskite solar cells (PSCs) causes a breakthrough in the solar technology recently due to its superior optoelectronic properties and the low-cost fabrication processes. The dramatic enhancement in power conversion efficiency (PCE) of PSCs from 3.8 % in 2009 to the recent certified record PCE of 22.7% indicates huge potential of PSCs for future high efficiency and large scale photovoltaic manufacturing. The electron selective layer (ESL) plays an important role in electron extraction and hole blocking function in PSCs, and there have been great interest in developing efficient ESL materials. Recently, tin oxide (SnO_2) as an ESL has attracted significant research