

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202111038118 A

(19) INDIA

(22) Date of filing of Application :23/08/2021

(43) Publication Date : 03/03/2023

(54) Title of the invention : TWO-TERMINAL MONOLITHIC TANDEM SOLAR CELL WITH A-SI:H TOP SUBCELL AND PBS CQD BOTTOM SUBCELL

(51) International classification :H01L0031072500,
H01L0031056000,
H01L0031078000,
H01L0031180000,
H01L0027300000

(31) Priority Document No :NA
(32) Priority Date :NA
(33) Name of priority country :NA
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Chitkara Innovation Incubator Foundation
Address of Applicant :SCO: 160-161, Sector - 9c, Madhya
Marg, Chandigarh - 160009, India. Chandigarh India

(72)Name of Inventor :
1)KASHYAP, Savita
2)PANDEY, Rahul
3)MADAN, Jaya
4)SHARMA, Rajnish

(57) Abstract :

The present disclosure provides a two-terminal monolithic tandem solar cell 100 with a-Si:H top subcell 102 and PbS CQD bottom subcell 104, where the top subcell 102 absorbs first set of photons having 1.7 eV and the bottom subcell 104 absorbs second set of photons having 1.2 eV. The solar cell 100 includes an interlayer 106 made up of ITO, and configured between the top subcell 102 and the bottom subcell 104 in order to achieve current-matching between the top subcell 102 and the bottom subcell 104 of the solar cell 100. The solar cell 100 further includes ZnO and Ag conductors as back reflector to reduce the unwanted heat in the tandem solar cell 100.

No. of Pages : 22 No. of Claims : 10