

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202311017998 A

(19) INDIA

(22) Date of filing of Application :16/03/2023

(43) Publication Date : 31/03/2023

(54) Title of the invention : TANDEM SOLAR CELL AND METHOD FOR OPTIMIZING TANDEM SOLAR CELL

(51) International classification :H01L 273000, H01L 310430, H01L 310725, H01L 310780, H01L 311800  
(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 University**

Address of Applicant :Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----

**2)Chitkara Innovation Incubator Foundation**

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

**1)Mr. Nikhil Shrivastav**

Address of Applicant :Research Scholar, Department of Electronics & Communication Engineering, Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----

**2)Dr. Jaya Madan**

Address of Applicant :Assistant Professor, Department of Electronics & Communication Engineering, Chitkara University, Chandigarh-Patiala National Highway (NH-64), Village Jhansla, Rajpura, Punjab – 140401, India Rajpura -----

**3)Dr. Rahul Pandey**

Address of Applicant :Assistant Professor, Department of Electronics & Communication Engineering, Chitkara University, Chandigarh-Patiala National Highway (NH-64), Village Jhansla, Rajpura, Punjab - 140401, India. Rajpura -----

(57) Abstract :

The present disclosure describes a tandem solar cell (100) comprising a top layer (102) of perovskite material, wherein the top layer (102) comprises a hole (106) transport layer (108), a perovskite active layer (110), and an electron transport layer (112); and a bottom layer (104) of copper indium gallium selenide, CIGS material, wherein the bottom layer (104) comprises an indium-doped tin oxide, ITO layer (114), a zinc oxide, ZnO layer (116), a cadmium sulfide, CdS layer (118), and a CIGS active layer (120) and characterizing that the electron transport layer top layer and the ITO layer of the bottom layer (104) are electrically coupled with each other to form a tandem configuration efficiently in a cost-effective manner.

No. of Pages : 19 No. of Claims : 10