

(54) Title of the invention : LEAD-FREE PEROVSKITE-CZTSSE BASED TANDEM SOLAR CELL SYSTEM AND A METHOD THEREOF

<p>(51) International classification :H01L 273000, H01L 310430, H01L 310725, H01L 310780, H01L 311800</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant :</p> <p>1)Chitkara University Address of Applicant :Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----</p> <p>2)Chitkara Innovation Incubator Foundation Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor :</p> <p>1)Ms. Shivani Address of Applicant :JRF, Department of Electronics & Communication Engineering, Chitkara University, Chandigarh-Patiala National Highway (NH-64), Village Jhansla, Rajpura, Punjab - 140401, India Rajpura -----</p> <p>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 -----</p> <p>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 -----</p>
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(57) Abstract :

ABSTRACT LEAD-FREE PEROVSKITE-CZTSSE BASED TANDEM SOLAR CELL SYSTEM AND A METHOD THEREOF A lead-free perovskite-CZTSSe based tandem solar cell and a method are disclosed. The tandem solar cell comprises a top cell configuration and a bottom cell configuration, wherein the bottom cell has a configuration of Sn₂S₃/CZTSSe/CdS/i-ZnO/ZnO, the optimized thickness for the best current matching condition is 380 nm thick LFP and 550 nm thick CZTSSe, respectively, with a short circuit current density (JSC) of 14.9 mA/cm², and wherein the layer of Sn₂S₃ as a back-surface field (BSF) layer that reduces the back-surface recombination for the bottom cell. [Figure 1]

No. of Pages : 18 No. of Claims : 10