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(19) **United States**(12) **Patent Application Publication**  
**BIAGINI et al.**(10) **Pub. No.: US 2023/0232705 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **SEMI-TRANSPARENT PEROVSKITE-BASED  
PHOTOVOLTAIC CELLS AND PROCESS  
FOR PREPARING THEM***H10K 50/15* (2006.01)*H10K 30/82* (2006.01)*H10K 30/86* (2006.01)*H10K 30/85* (2006.01)*H10K 30/20* (2006.01)(71) Applicant: **ENI S.P.A.**, Roma (IT)(72) Inventors: **Paolo BIAGINI**, Novara (IT);  
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**ABSTRACT**

A semi-transparent perovskite-based photovoltaic cell (or solar cell), wherein the photoactive perovskite layer includes at least one polysaccharide-based inert polymer in an amount ranging between 0.5% by weight and 3.5% by weight, preferably ranging between 1% by weight and 3% by weight, more preferably ranging between 1.5% by weight and 2.8% by weight, with respect to the total weight of the perovskite precursors. The semi-transparent perovskite-based photovoltaic cell (or solar cell) can be advantageously used in various applications that require the production of electricity through the exploitation of light energy, in particular solar radiation energy such as, for example: building integrated photovoltaic (BIPV) systems; photovoltaic windows; greenhouses; photo-bioreactors; noise barriers; lighting; design; advertising; automotive industry. Said semi-transparent perovskite-based photovoltaic cell (or solar cell) can be used either in a "stand alone" mode or in modular systems.

