

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2023/0231061 A1 Hossain et al.

Jul. 20, 2023 (43) Pub. Date:

(54) EFFICIENT AND COST-EFFECTIVE PHOTONIC COOLER BASED IR FILTERING FOR PHOTOVOLTAICS AND ENERGY **EFFICIENCY APPLICATIONS**

(71) Applicant: Qatar Foundation for Education, Science and Community Development, Doha (QA)

Inventors: Mohammad Istiaque Hossain, Doha (QA); Brahim Aïssa, Doha (QA)

(21) Appl. No.: 18/090,968 (22) Filed: Dec. 29, 2022

Related U.S. Application Data

(60) Provisional application No. 63/294,652, filed on Dec. 29, 2021.

Publication Classification

(51) Int. Cl. H01L 31/0216 (2006.01)H01L 31/024 (2006.01)

U.S. Cl. CPC H01L 31/02164 (2013.01); H01L 31/024 (2013.01); H01L 31/02327 (2013.01)

(57)**ABSTRACT**

A filter for infrared radiation is provided as a photonic cooler coating. The filter for infrared radiation includes a first metal oxide; a second metal oxide; and a metal layer, wherein the first metal oxide layer is provided between the second metal oxide layer and the metal layer.

