

Title (en)
PHOTOVOLTAIC ELEMENT WITH INCREASED LONG-TERM STABILITY

Title (de)
PHOTOVOLTAIKELEMENT MIT ERHÖHTER LANGZEITSTABILITÄT

Title (fr)
ÉLÉMENT PHOTOVOLTAÏQUE À LA STABILITÉ À LONG TERME ACCRUE

Publication
EP 2705539 A4 20150304 (EN)

Application
EP 12779520 A 20120426

Priority
• EP 11164482 A 20110502
• EP 11192106 A 20111206
• IB 2012052074 W 20120426
• EP 12779520 A 20120426

Abstract (en)
[origin: WO2012150529A1] A photovoltaic element (110) for conversion of electromagnetic radiation (130) to electrical energy is proposed, comprising at least one first electrode (116), at least one n-semiconductive metal oxide (120), further comprising at least one dye (112) for absorption of at least a portion of the electromagnetic radiation (130), further comprising at least one organic hole conductor material (126) and at least one second electrode (132). The organic hole conductor material (126) in said photovoltaic element (110) has an absorption spectrum for the electromagnetic radiation (130) which has an absorption maximum in an ultraviolet or blue spectral region and then, toward higher wavelengths, an absorption edge declining with the wavelength of the electromagnetic radiation (130) and having a characteristic wavelength λ_{HTL} . A decadic absorbance of the hole conductor material (126) at a wavelength λ_{HTL} within the declining absorption edge is 0.3. The photovoltaic element (110) further has at least one longpass filter (128). The longpass filter (128) has a transmission edge rising with the wavelength of the electromagnetic radiation (130) and having a characteristic wavelength λ_{LP} , a transmission of the longpass filter (128) at λ_{LP} being 50% of a maximum transmission of the longpass filter (128), where $\lambda_{HTL} - 30 \text{ nm} = \lambda_{LP} = \lambda_{HTL} + 30 \text{ nm}$.

IPC 8 full level
H01L 31/04 (2014.01); **H01L 31/048** (2014.01); **H01L 51/42** (2006.01); **H01L 51/44** (2006.01)

CPC (source: CN EP KR)
H01L 31/02167 (2013.01 - CN EP); **H01L 31/04** (2013.01 - KR); **H01L 31/18** (2013.01 - KR); **H10K 30/80** (2023.02 - CN EP KR); **H10K 85/621** (2023.02 - CN); **H10K 85/631** (2023.02 - CN); **H10K 85/633** (2023.02 - CN); **H10K 85/636** (2023.02 - CN); **H10K 85/655** (2023.02 - CN); **H10K 85/6572** (2023.02 - CN); **H01G 9/2009** (2013.01 - CN EP KR); **H10K 30/151** (2023.02 - CN EP KR); **H10K 30/50** (2023.02 - CN EP KR); **Y02E 10/549** (2013.01 - EP)

Citation (search report)
[A] US 2011030789 A1 20110210 - KREBS FREDERIK CHRISTIAN [DK]

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2012150529 A1 20121108; AU 2012251447 A1 20131114; CN 103636022 A 20140312; EP 2705539 A1 20140312; EP 2705539 A4 20150304; JP 2014520386 A 20140821; KR 20140041513 A 20140404; ZA 201309204 B 20150429

DOCDB simple family (application)
IB 2012052074 W 20120426; AU 2012251447 A 20120426; CN 201280032856 A 20120426; EP 12779520 A 20120426; JP 2014508899 A 20120426; KR 20137031886 A 20120426; ZA 201309204 A 20131129