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Patent Search

Invention Title	HIGH PERFORMANCE DYE SENSITIZED SOLAR CELLS USING NOVEL POLYMER QUASI SOLID ELECTROLYTES
Publication Number	26/2020
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Publication Type	INA
Application Number	202011024263
Application Filing Date	10/06/2020
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	POLYMER TECHNOLOGY
Classification (IPC)	B82Y 30/00 H01G 9/20 A61Q 19/00

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Applicant			
Name	Address	Country	Nationality
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Abstract:

The proposed disclosure provides a quasi-solid electrolyte dispersed with one-dimensional inorganic nano-fiber fillers in the blended polymer nano-fibers matrix and its implication in Dye-Sensitized Solar Cells (DSSC). The inorganic fillers dispersed into the blended polymer matrix aids to disrupt crystallinity and results in betterment of its intrinsic properties that favors conductivity. The dispersal of one-dimensional TiCh nano-fiber fillers blended in the blended polymer matrix depicts best device performance and highest conductivity efficiency of 8.02 percentage in the Dye-Sensitized Solar Cells (DSSC). Further, the inorganic nano-fiber fillers dispersed blended polymer matrix provides fast ion conduction. FIG. 1

Complete Specification

Field of the invention:

[0001] The present disclosure generally relates to the technical field of polymer blend electrolytes, and more particularly relates to the quasi-solid electrolyte dispersed with one-dimensional inorganic nano-fiber fillers in the blended polymer nano-fibers matrix and its implication in Dye-Sensitized Solar Cells (DSSC).

Background of the invention:

[0002] Among various solar cells, dye-sensitized solar cells (DSSC) using liquid electrolytes are the trending eco-friendly energy devices, as it can achieve high power conversion efficiency with low-cost materials and easy fabrication techniques.

[0003] The Dye-Sensitized Solar Cell (DSSC, DSC, DYSC, or Gratzel cell) is regarded as a simple electro chemical device consisting of two electrodes and an electrolyte. At least one of the electrodes is considered, a photosensitive generating energy-rich photoelectron upon irradiation. The third component is the electrolyte which takes care of the charge transport between the electrodes.

[0004] The liquid electrolyte is highly corrosive, volatile and photo reactive, interacting with common metallic components and sealing materials. Liquid electrolytes based DSSC's have achieved an efficiency of about 14%. Though, the liquid electrolytes based DSSC's achieved higher efficiencies, several undesirable problems such as leakage, precipitation of ionic salts, degradation of adsorbed dye, corrosion, and thereof restrict the long-term stability of the cell. Major disadvantage of using liquid electrolytes is temperature stability problems. At low temperatures, the electrolyte can freeze, resulting in halting power production and potentially leading to physical damage. The above said factors are very crucial that limit the commercialization of DSSC.

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Application Details

APPLICATION NUMBER	202011024263
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	10/06/2020
APPLICANT NAME	Dr. Muralidhar Nayak Bhukya
TITLE OF INVENTION	HIGH PERFORMANCE DYE SENSITIZED SOLAR CELLS USING NOVEL POLYMER QUASI SOLID ELECTROLYTES
FIELD OF INVENTION	ELECTRICAL
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E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	26/06/2020

Application Status

APPLICATION STATUS	Awaiting Request for Examination
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➡ Filed ➡ Published ➡ RQ Filed ➡ Under Examination ➡ Disposed

In case of any discrepancy in status, kindly contact ipo-helpdesk@nic.in

"FORM1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT				(FOR OFFICE USE ONLY)	
				Application No.	
				Filing date:	
				Amount of Fee paid:	
				CBR No:	
				Signature:	
1. APPLICANT'S REFERENCE/ IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary (<input checked="" type="checkbox"/>)		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()
3A. APPLICANT(S)					
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				Country	India
				Pincode	123031
3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]					
Natural Person (<input checked="" type="checkbox"/>)		Other than Natural Person			
		Small Entity ()	Startup ()	Others ()	
4. INVENTOR(S) [Please tick (✓) at the appropriate category]					
Are all the inventor(s)		Yes ()		No (<input checked="" type="checkbox"/>)	
same as the applicant(s) named above?					

If "No", furnish the details of the inventor(s)			
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			Country India
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			City Hyderabad
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5. TITLE OF THE INVENTION			
High Performance Dye Sensitized Solar Cells Using Novel Polymer Quasi Solid Electrolytes			
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8. INCASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION

Country	Application Number	Filing date	Name of the inventor	Title of the invention	IPC (as classified in the convention country)

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)

International application number	International filing date

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION

Original (first) application No.	Date of filing of original (first) application

11. INCASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT

Main application/patent No.	Date of filing of main application

12. DECLARATIONS

(i) Declaration by the inventor(s)

(In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

I, the abovenamed inventor is the true & first inventor(s) for this invention and

Declare that the applicant herein is my assignee or legal representative.

(a) Date: 10-06-2020

(b) Signature: 1.

Name: 1. Dr. S. Vinitha

Signature: 2.

Name: 2. Dr. Muralidhar Nayak Bhukya

Signature: 3.

Name: 3. Dr. V Chandra Jagan Mohan

(ii) Declaration by the applicant(s) in the convention country

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)

I, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date: 10-06-2020

(b) Signature: 1.

Name: 1. Dr. S. Vinoth

Signature: 2.

Name: 2. Dr. Muralidhar Nayak Bhukya

Signature: 3.

Name: 3. Dr. V Chandra Jagan Mohan

(iii) Declaration by the applicant(s)

I/We the applicant(s) hereby declare(s) that:-

- ┆ I am in possession of the above-mentioned invention.
- ┆ The complete specification relating to the invention is filed with this application.
- ┆ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.
- ┆ There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- ┆ I am the true & first inventor.
- ┆ I am the assignee or legal representative of true & first inventor.
- ┆ The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).
- ┆ I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.
- ┆ My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.
- ┆ The application is divided out of my/our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.
- ┆ The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ provisional specification)#	No. of pages		
No. of Claim(s)	No. of claims and No. of pages		
Abstract	No. of pages		
No. of Drawing(s)	No. of drawings and No. of pages		

#In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

(b) Complete specification (in conformity with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(c) Sequence listing in electronic form

(d) Drawings (in conformity with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

(e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

(f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.

(g) Statement and Undertaking on Form 3


(h) Declaration of Inventorship on Form 5

(i) Power of Authority

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters stated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this 10th day of June, 2020

Signature:



Name: Hima Bindu Atti

To,

The Controller of Patents

The Patent Office, at Delhi.

Note:-

- * Repeat boxes in case of more than one entry.
- * To be signed by the applicant(s) or by authorized registered patent agent otherwise mentioned.
- * Tick (✓)/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
- * Name of the inventor and applicants should be given in full, family name in the beginning.
- * Strike out the portion which is/are not applicable.
- * For fee: See First Schedule";