

Analyzing Organic Photovoltaics 2016

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Abstracts

An organic photovoltaic cell is a cell which applies organic materials for light absorption and subsequent charge transport which is aided by its core model of low cost, production scalability and flexibility at the molecular level. The fine process of chemical tuning is achieved in this by varying the lengths and functional groups of polymers which allows the management of the energy gap. Organic molecules however are also not completely bereft of their disadvantages as well.

Aruvian Research's report Analyzing Organic Photovoltaics earmarks the immense potential that this technology holds for the future of mankind and the crucial impact it will have on the process of introduction of solar energy into large scale arenas of the industrialized economies.

The report Analyzing Organic Photovoltaics initiates with a strong theoretical understanding of the Solar Cell system and their subsequent propagation into photovoltaic systems including their applications derived from generational leaps as first to third generation cells. The report presents the entire gamut of PV cells in a structured family tree for easy interpretation and also delves into the applications of PV Technology in isolated environment.

One of the critical factors affecting PV systems is nature and Aruvian Research's report also examines the effects of various factors as Sunlight, Weather, Temperature as well as cloudy weather. In this context the report provides a picture of the global markets for PV solar cells and the commercial aspect is explored in the profiling of the markets as well as the statistics as growth patterns on the production side. The report also explores the commercialization potential and future for the market for PV conditions.

The environmental impact of any technology system has also been examined even though Solar PV systems are as close to addressing environmental concerns as

possible through instances as a typical SWH system will, over its lifetime, displace 10.5 tons of CO₂ if replacing a natural gas system, or 71.5 tons if replacing an electric system.

The report also devotes an entire in depth section to the technical aspects of organic PV systems including their history as well as mechanism, general operation principles and the new innovations in architecture design of Organic PV cells which have opened up new markets for OPV systems. These are further explained in the efficient design choices of various donor and acceptor molecules and new ideas contributed in this field. The report also addresses a natural query of comparisons between Organic PV cells and traditional PV cells as also the factors which impact the production of organic PV cells. The organic PV systems are subjected to the efficiency factors as well as the cost factor in implementing these systems which are some of the challenges explained in this report to improving and fine tuning the performance of OPV systems.

The report further analyzes the processing techniques of Organic PV cells and various types of concentrators as well as antenna photovoltaic cells. In order to address the efficiency factors which impact the Organic PV systems the report examines the application on nanostructures to this with a complete overview on the two major techniques in use today. There have been efforts to increase the longevity of OPV cells with the application of Exciton Blocking layers being added in order to ensure maximum mileage from any system implemented.

The report also provides a comprehensive look into the US National Solar Technology Roadmap on Organic PV which communicates the intent and the thoroughness of effort being put by the US behind OPV technologies. The report further adds depth to practical understanding of OPV systems by providing two case studies on OPV cells. Leading industry contributors which have globally made an impact on this industry are also elaborated in this report.

Analyzing Organic Photovoltaics is a very comprehensive tool for understanding this technology in a in depth manner and deliver thought provoking views on the marvels of this field which is nature's helping hand lent to mankind in order to preserve a way of life which is sustainable as well as in sync with our environment.

Contents

A. EXECUTIVE SUMMARY

B. INTRODUCTION TO PHOTOVOLTAICS

- B.1 Overview
- B.2 Historical Background of Solar Cells
- B.3 Looking at Solar Electricity
- B.4 Photovoltaic Systems
- B.5 Looking at the Balance of System (BOS)
- B.6 Analyzing the 3 Generations of Photovoltaic Cells
 - B.6.1 First Generation PV Cells
 - B.6.2 Second Generation PV Cells
 - B.6.3 Third Generation PV Cells
- B.7 What are Concentrator Cells?
- B.8 Analyzing Concentrated Photovoltaics
- B.9 Applications of Solar Cells
- B.10 Types of Solar Cells
- B.11 PV Technology in Isolated Generation
- B.12 Looking at Thin Film Solar Cells
- B.13 PV Family Tree – A Diagrammatic Representation

C. GLOBAL MARKET OVERVIEW OF SOLAR PV CELLS

- C.1 Market Profile
- C.2 Market Size
- C.3 Growth Patterns of the Market
- C.4 Market Statistics – Production Side
- C.5 Commercialization Potential & Market Development
- C.6 Future of the Market

D. CONDITIONS IMPACTING THE PERFORMANCE OF SOLAR PV CELLS

- D.1 Sunlight Conditions
- D.2 Weather Conditions
 - D.2.1 Cold Weather
 - D.2.2 Cloudy Weather
- D.3 Environmental Impact of Solar PV Cells

- D.3.1 Overview
- D.3.2 Greenhouse Gases
- D.3.3 Usage of Cadmium
- D.3.4 Energy Payback Time

E. ANALYZING SOLAR PHOTOVOLTAIC SYSTEM PERFORMANCE

F. ANALYZING PRODUCTION OF PV CELL & MODULE

G. ANALYZING ORGANIC PHOTOVOLTAICS

- G.1 Overview
- G.2 Emergence of New PV Materials
- G.3 Emergence of Organic PV
- G.4 History of Organic PV Cells
 - G.4.1 Single Layer OPV Cell
 - G.4.2 Bilayer OPV Cells
 - G.4.3 Bulk Heterojunction OPV Cells
- G.5 Looking at Organic Photovoltaic Materials
- G.6 Development of New Materials for Organic PV
- G.7 General Operation and Construction
- G.8 Mechanism of Organic PV Cells
- G.9 General Working Principle
- G.10 Device Physics of Organic Blend PV Cells
- G.11 Junction Types for Organic PV Cells
 - G.11.1 Dispersed Heterojunction Photovoltaic Cells
 - G.11.2 Multilayer Organic Photovoltaic Cells
 - G.11.3 Single Layer Organic Photovoltaic Cell
- G.12 Impact of Film Morphology
- G.13 Dealing with Controlled Growth Heterojunction
- G.14 Progress in Growth Techniques
- G.15 Vacuum Thermal Evaporation
- G.16 Organic Vapor Phase Deposition
- G.17 Efficiency Developments in Organic PV Cells
- G.18 Looking at the Innovative Architecture of Organic PV Cells
- G.19 Markets for Organic PV
- G.20 Future Challenges

H. ORGANIC CELL ARCHITECTURES AND REVIEW

- H.1 Overview
- H.2 Single Layer Devices
- H.3 Donor-Acceptor Bilayer Devices
- H.4 Donor-Acceptor Blend Devices

I. ORGANIC PV CELLS VERSUS TRADITIONAL SOLAR CELLS

J. DESIGN AND CHOICE OF EFFICIENT DONOR AND ACCEPTOR MOLECULES

- J.1 Overview
- J.2 Donor Molecules
- J.3 Acceptor Molecules
- J.4 New Ideas
- J.5 Present-day Challenges

K. FACTORS IMPACTING THE PRODUCTION OF ORGANIC PV CELLS

- K.1 Overview
- K.2 Efficiency Factor
- K.3 Lifetime Period
- K.4 Cost Factor
- K.5 Summing Up

L. CHALLENGES FACING ORGANIC PV CELLS

- L.1 Overview
- L.2 Thin Film Heterojunctions
- L.3 Dye Sensitized or Photoelectrochemical Solar Cells

M. IMPROVING ORGANIC PV CELL PERFORMANCE

- M.1 Overview
- M.2 Bandgap Tuning of Semiconducting Organics and Tandem Cells
- M.3 Nanostructured PV Cell
- M.4 High Mobility Semiconducting Organics

N. ANALYSIS OF PROCESSING TECHNIQUES FOR ORGANIC PV CELLS

- N.1 Nanoimprint Lithography (NIL)
- N.2 Spin Casting
- N.3 Vacuum Evaporation

O. ANALYZING ANTENNA ORGANIC PV CELLS

- O.1 Overview
- O.2 Organic Materials
- O.3 Looking at the Antenna Architecture
- O.4 Looking at Surface Plasmon Polaritons (SPP)
- O.5 Excitation Efficiency of Organic Solar Cell SPP
- O.6 Resultant Energy Transfer from Antenna Excitons
- O.7 R&D of Antenna Organic Photodetectors
- O.8 R&D of Antenna Organic PV Cells
- O.9 Cavity Antenna Organic PV Cells
- O.10 Future of Antenna Photovoltaics

P. ANALYZING ORGANIC SOLAR CONCENTRATORS

- P.1 Looking at Solar Concentrators
- P.2 Concept of Fluorescent Concentrators
- P.3 Restrictions on Optical Concentration
 - P.3.1 Looking at Inelastic Processes
 - P.3.2 Looking at Elastic Processes
- P.4 Looking at Organic Solar Concentrators
- P.5 Thermal Performance of Organic Solar Concentrators

Q. MAKING ORGANIC PV CELLS MORE EFFICIENT WITH ORDERED NANOSTRUCTURES

- Q.1 Overview
- Q.2 History
- Q.3 Nanosphere Lithography Technique
- Q.4 Block Copolymer Lithography Technique
- Q.5 Summing Up

R. INCREASING THE LONGEVITY OF ORGANIC PV CELLS WITH EXCITON BLOCKING LAYERS (EBLS)

- R.1 Overview
- R.2 Looking at Single Cells
- R.3 Looking at PV Cells
- R.4 Analyzing Results of Single Cells versus PV Cells
 - R.4.1 Single Cells
 - R.4.2 PV Cells
 - R.4.2.1 Bathocuproine
 - R.4.2.2 Bathophenanthroline
 - R.4.2.3 Tris-8-Hydroxy-Quinolinato Aluminum
 - R.4.2.4 NBPhen Cells
- R.5 Summing Up

S. LOOKING AT THE US NATIONAL SOLAR TECHNOLOGY ROADMAP ON ORGANIC PV

T. CASE STUDY: INCREASING THE LIFE OF ORGANIC SOLAR CELLS WITH BORON NITRIDE NANOTUBE-LOADED POLYMER

U. CASE STUDY: SYNTHESIS OF OLIGO PHENYLENE VINYLENES FOR ORGANIC PV CELLS – A DIAGRAMMATIC REPRESENTATION

V. LEADING INDUSTRY CONTRIBUTORS

- V.1 Amonix Incorporated
- V.2 ArcticSolar AB
- V.3 Ascent Solar Technologies, Inc
- V.4 ASE Americas Inc
- V.5 Asia Silicon Co., Qinghai
- V.6 Atlantis Energy Inc
- V.7 Big Sun Energy
- V.8 Canadian Solar Inc.
- V.9 Canon
- V.10 Central Electronics Ltd.
- V.11 China Solar Power (Holdings) Ltd.
- V.12 China Sunergy
- V.13 CSG Holding
- V.14 Ebara Solar
- V.15 Elkem
- V.16 Entech Inc

- V.17 EPV Energy Photovoltaics Inc
- V.18 Bosch Solar Energy
- V.19 Ertex Solar
- V.20 First Solar
- V.21 Global Solar Energy
- V.22 GT Advanced Technologies
- V.23 Kyocera Solar
- V.24 Mitsubishi Electric Corporation
- V.25 Photowatt International
- V.26 Sanyo Electric
- V.27 Sharp Corporation
- V.28 Shell Solar
- V.29 Siemens Solar
- V.30 Solibro GmbH
- V.31 Spire Corporation
- V.32 SunPower Corporation
- V.33 TerraSolar, Inc.

W. APPENDIX

- W.1 Cost Economics of Solar Photovoltaics
 - W.1.1 Overview
 - W.1.2 Financing
 - W.1.3 Price Trends of PV Systems
 - W.1.4 Dealing with the High Cost of PV Modules
 - W.1.5 Looking at Transmission Costs
 - W.1.6 Analyzing the Financial Incentives
- W.2 PEST Framework Analysis: Global Solar Photovoltaic Industry
 - W.2.1 Political Aspects
 - W.2.2 Economic Aspects
 - W.2.3 Social Aspects
 - W.2.4 Technological Aspects
- W.3 Manufacturers of Solar Photovoltaics
- W.5 Figures & Tables

X. GLOSSARY OF TERMS

List Of Figures

LIST OF FIGURES

- Figure 1: A Solar Cell Made from a Monocrystalline Silicon Wafer
- Figure 2: Installed PV Capacity by Technology in 2014
- Figure 3: Development of Cumulative Installed Global & EU PV Capacity
- Figure 4: Annual Market (MW) and Annual Growth Rate (%)
- Figure 5: Global PV Capacity Growth & Forecast
- Figure 6: Regional Breakdown of Global PV Markets
- Figure 7: Worldwide Solar Insolation Levels
- Figure 8: Device Structures of OPV Cells: a) Single Layer OPV Cell; b) Bilayer OPV Cell; c) Bulk Heterojunction OPV Cell
- Figure 9: Photoinduced Charge Transfer from Conjugated Polymer, PPV, to C60
- Figure 10: Morphology of P3HT & PCBM Blend OPV CELL: a) Molecular Structures of P3HT & PCBM & Device Cross Section of OPV Cell; b) TEM Image of Blend Composite of P3HT & PCBM; c) Schematic Diagram of Phase Separated Blend of P3HT & PCBM
- Figure 11: Examples of OPV Materials
- Figure 12: a) Generic OPV Consisting of a Donor & Acceptor Sandwiched between Two Electrodes b) Same Cell under Illumination Showing Exciton Formation, Migration & Dissociation
- Figure 13: Organic Semiconductor for OPV
- Figure 14: Structure of OPV
- Figure 15: Device Working Principle from Light Absorption to Charge Collection
- Figure 16: Definition of Fill Factor (FF), J_{max} : Current Density at the Maximum of $J \times V$ in 4th Quadrant, V_{max} : Bias at the Maximum of $J \times V$ in 4th Quadrant
- Figure 17: Circuit of Photovoltaic Device, R_s : Series Resistance, R_{sh} : Shunt Resistance
- Figure 18: J-V Curves Under Dark Condition and Illumination. Y Axis is Log Scale
- Figure 19: Sketch of a Dispersed Junction PV Cell
- Figure 20: Sketch of a Multilayer OPV Cell
- Figure 21: Sketch of a Single Layer OPV Cell
- Figure 22: (a) Highly Folded Hetero-junction; (b) Hetero-junction with Controlled Growth
- Figure 23: Vapor Thermal Evaporation
- Figure 24: Organic Vapor Phase Deposition
- Figure 25: Mechanism of Photocurrent Generation in an Organic Photovoltaic Solar Cell
- Figure 26: Schematics of Organic Donor-Acceptor Heterojunctions
- Figure 27: Schematic Presentation of the Different Organic Photovoltaic Device Architectures
- Figure 28: Energy Diagram According to the MIM Model of a Single Layer Conjugated

Polymer PV Device Under Short Circuit Conditions

Figure 29: Schematic Energy Diagram of a Bilayer Donor-Acceptor Device under Short Circuit Conditions

Figure 30: Definition of Terms: Absorption Window; Ideal, Optimistic & Realistic Scenario for Absorption & Quantum Efficiency QE.

Figure 31: Maximum Efficiency as a Function of the Bandgap in a Solar Cell with One Active Material. A Decrease of the Absorption Window Leads to a Shift (Increase) in the Optimal Bandgap.

Figure 32: Definition of Terms: Absorber, HOMO

Figure 33: Examples of Commonly Used Donor (P-Type) Polymers and Small Molecules

Figure 34: Examples of Commonly Used Acceptor Polymers and Small Molecules

Figure 35: Typical Device Architecture for a Thin-Film HJ

Figure 36: Energy Level Diagram for a Thin-Film HJ Device

Figure 37: Current–Voltage Characteristics of a Typical COPE Thin-Film HJ Device made from a P3HT

Figure 38: Absorption Characteristics of Conjugated Polymers

Figure 39: Nanostructured OPV Cell Structure

Figure 40: Hole Mobilities of Organic Semiconductors

Figure 41: Nanoimprint Lithography Process Scheme: a) and b) Imprinting; c) Demolding; and d) Anisotropic Etching

Figure 42: Scheme of Spin Coating Process

Figure 43: Diagram of Vacuum Evaporator

Figure 44: PV Device Excitation Routes

Figure 45: Kretschmann Experimental Configuration

Figure 46: Magnitude of the Electric Field in Surface Plasmon Excited Photodiode

Figure 47: Direct SPP Excitation Optical Spectra

Figure 48: Idealized Antenna Configuration

Figure 49: Structural Configuration of a Fluorescent Concentrator

Figure 50: Optical Transformer

Figure 51: Light Interaction with a Semiconductor

Figure 52: Power Flow and Maximum Optical Concentration in a Single Junction Solar Cell

Figure 53: Prices Compared with Shipments \$/Watt

Figure 54: Cost of PV to Consumers & Manufacturing Shipments

Figure 55: A Schematic Arrangement of a PV Cell

Figure 56: Solar Parabolic Trough System Combined with Fossil Fuel Firing to Generate Electrical Power

Figure 57: Arrangement of a Central Receiver Solar Thermal System

Figure 58: A Solar Pond Arrangement

Figure 59: Integrated Solar/Combined Cycle System (ISCC)

Figure 60: Solar RFC Power System

Figure 61: Space Application of RFC Power System

Figure 62: Best Research - Cell Efficiencies

List Of Tables

LIST OF TABLES

Table 1: Cost Breakdown for a 100 kWp-10 MWP Concentrator Photovoltaics Installation

Table 2: Module Component Materials Cost for Thin Film Cadmium Telluride Systems

Table 3: Development of Cumulative Installed Global & EU PV Capacity

Table 4: Annual Market (MW) and Annual Growth Rate (%)

Table 5: Industry Forecast for Major Worldwide Yearly PV Markets in MW

Table 6: Production Capacities Forecast by End of 2020

Table 7: Installed System Prices in Selected Countries (Prices in U.S. Dollars)

Table 8: Early Solar Thermal Power Plants

Table 9: Comparison of Solar Thermal Power Technologies

Table 10: Cost Reductions in Parabolic Trough Solar Thermal Power Plants

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