

# SEMICONDUCTOR MATERIALS



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169, C-11, Sector - 3,  
Rohini, Delhi-110085, India  
Toll Free (India) – 18001234070

— CHIEF EDITOR —  
**DR. ALKA SINGH**

Volume - 1

AKINIK PUBLICATIONS  
NEW DELHI

**Published By:** AkiNik Publications

AkiNik Publications  
169, C-11, Sector - 3,  
Rohini, Delhi-110085, India  
Toll Free (India) – 18001234070

**Chief Editor:** Dr. Alka Singh

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**Publications Year:** 2020

**Pages:** 108

**ISBN:** 978-93-90420-46-9

**Book DOI:** <https://doi.org/10.22271/ed.book.946>

**Price:** ₹ 716/-

**Chapter - 4**  
**Bio-Cell and Its Possible use in Rural Lighting**

**Authors**

**Dr. Alka Singh**

Assistant Professor, Guru Ghasidas Central University,  
Bilaspur, Chhattisgarh, India

**Dr. Navin Kumar**

Center Coordinator, Ignou Center for Engineering,  
Muzaffarpur, Bihar, India

**Dr. Rashmi Choudhary**

Assistant Professor, DIT Dehradun, Uttarakhand, India



# Chapter - 4

## Bio-Cell and Its Possible use in Rural Lighting

Dr. Alka Singh, Dr. Rashmi Choudhary and Dr. Navin Kumar

### Abstract

Despite of lots of initiatives being made from governments cent percent rural electrification is yet seems distant. Alternative energy sources are the main sources to rely upon till 100 electrification for at least lighting the houses in remote villages. With serious concern globally and in India on the use of fossil fuels, it is important for India to start using renewable energy sources. India is the 7<sup>th</sup> largest country in the world spanning 328 million hectares and amply bestowed with renewable sources of energy. Among the renewable energy sources, biomass plays a vital role especially in rural areas, as it constitutes the major energy source to majority of households in India. Biomass energy is the utilization of organic matter present and can be utilized for various applications. India produces about 450-500 million tonnes of biomass per year. Biomass provides 32% of all the primary energy use in the country at present. EAI estimates that the potential in the short term for power from biomass in India varies from about 18,000 MW, when the scope of biomass is as traditionally defined, to a high of about 50,000 MW if one were to expand the scope of definition of biomass.

### Bio-cell

The concept of bio-cell is very new-less than a decade old. Hardly any work has been done in this direction. Even if any work is done in sophisticated laboratories, it has been written off due to inherent limitations vis-à-vis maximum power output and applicability in developed countries. However, a few innovative experiments were conducted to assess its potential in one of the crudest way.

As per available literature, the most significant development in this direction is reported by Ohio State University in 2005. The results showed that 50 milli volt to 600 milli volts can be achieved from bio cells. The overall power output cannot be increased due to involvement of living organism. Nevertheless, its applicability remains still under cloud. However,

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**Chief Editor**

**Dr. Alka Singh**

Assistant Professor, Department of Pure and Applied Physics, Guru Ghasi  
Das Central University, Bilaspur, Chhattisgarh, Indian

**AkiNik Publications  
New Delhi**



# **AkiNik Publications**

Printing Press License No.: F.1 (A-4) press 2016

## **Acceptance Letter**

**Ref. No.:** SM-01-04

**Date:** 20-03-2020

**To,**  
**Dear Dr. Alka Singh**

The book chapter titled "**Bio-Cell and its Possible use in Rural Lighting**" is very well written and has been accepted for publication in edited book titled "**Semiconductor Materials (Volume - 1)**".

Yours Sincerely,



Akhil Gupta  
Manager  
AkiNik Publications

**Published By:** AkiNik Publications

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