

## REVIEWER'S REPORT

Manuscript No.: IJAR-57624

Title: Study of the Influence of Optimal Base Thickness on the I–V Characteristics of a Bifacial Silicon Solar Cell under Monochromatic Rear-Side Illumination in Steady-State Conditions for Short Wavelengths

### Recommendation:

- Accept as it is .....
- ✓ Accept after minor revision.....**
- Accept after major revision .....
- Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr S. K. Nath

### Detailed Reviewer's Report

#### Strength of the study:

- The study addresses an important topic related to optimization of bifacial silicon solar cells for better photovoltaic performance
- Mathematical modelling and theoretical analysis are presented in a systematic and organized manner
- The paper includes detailed graphs, equations, and tables supporting the findings clearly
- The relationship between wavelength, base thickness, photovoltage, and photocurrent is well demonstrated
- The conclusion is consistent with the obtained results and scientific objectives

#### Weakness of the study:

- The manuscript contains several grammatical and typographical errors that require careful revision
- Experimental validation is missing, making the study purely theoretical in nature
- Some figures and equations are not properly formatted for easier readability
- The discussion section could include stronger comparison with recent published studies
- Ethical statement is not relevant for this non-human theoretical study and may be unnecessary in this context

#### Reviewer's Comments:

The manuscript presents a theoretical investigation on the influence of optimum base thickness on the I–V characteristics of bifacial silicon solar cells under monochromatic rear-side illumination. The topic is relevant and scientifically valuable for photovoltaic research. The mathematical treatment is adequately developed, and the graphical presentation helps in understanding the influence of wavelength and recombination velocity on cell performance. The results appear logically interpreted and consistent with the proposed objectives. However, the manuscript requires improvement in grammar, sentence structure, and formatting of equations and figures. Some sections contain repetitive explanations that can be shortened for better readability. The absence of experimental validation limits the practical impact of the work, although the theoretical contribution remains useful. The references are extensive and mostly relevant to the study area. Ethical clearance has been mentioned, though it is not particularly necessary for this type of theoretical modelling study. Overall, the paper has scientific merit and can be considered after moderate revision and language correction.

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