Improvement of Efficiency of Solar Cells by Designing Coating Layers
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Transfer Matrix Method
Transfer matrix method is derived from oblique incidence at interfaces. Each interface has incoming and reflected waves, relation between these waves’ results transmission matrix, D.

\[ M = D_{12} \cdot P_2 \cdots D_{nn+1} \]

This mathematical tool is used for simulation of the coating.

Results and Conclusion
Using single two layers(SiO2/TiO2) for coating gives good results to avoid reflection. However, repeating these two layered structures gave more satisfactory results with no significant increase in thickness. Also, the effect of angle of incidence is minimized and gives better results in all angles.

Optimization
The efficiency in percentage is:

\[ \text{efficiency} = \left( \frac{\int_{300nm}^{1200nm} r(\theta, \lambda) \cdot S_{\text{solar}}(\lambda) d\lambda}{\int_{300nm}^{1200nm} S_{\text{solar}}(\lambda) d\lambda} \right) \times 100 \]

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