CHAPTER V CONCLUSIONS AND RECOMMENDATION

5.1 Conclusions

Based on data obtained from this research, the following conclusion can be drawn:

1. This research suggests that the optimal placement for NPs is within the active layer. Placing NPs at the back surface can enhances J_{sc} but it less effective, while placing NPs at the front surface of solar cells reduces J_{sc} due to the blocking of incoming light by NPs.
2. The J_{sc} of the solar cells increases as the NP size increases for NPs placed at the active layer and back surface. Meanwhile, for NPs placed at the front layer, the J_{sc} decreases as the NP size increases.
3. The optimal size for second's nanoparticle is 60 nm, J_{sc} increases as the size of the second nanoparticle increases.
4. The optimal distance between NPs is 25 nm.
5. The optimal NPs to enhance solar cells J_{sc} is Ag NPs with r_1=60 nm, r_2=60 nm, and a distance of 25 nm placing in active layers.

5.2 Recommendation

This research shows that placing NPs on the front layers of solar cells decreases the J_{sc}. For future research, we recommend investigating NP configurations for the front layer that produce forward scattering as the dominant mechanism, rather than absorption or transmission blocking of light by the NPs.