

Microbially facilitated kesterite formation for solar cell devices

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Technology Summary

Solar cells composed of photovoltaic (PV) materials can play an important role in generating electricity in the next centuries due to rising oil price and demanding the reduction of green house gases. The global solar electricity market is recently more than \$ 10 billion/year and the industry is growing at more than 30 % per annum. Microbially facilitated kesterite formation for solar cell devices is the inimitable biotechnology to produce economic and scalable kesterite which needs only earth-abundant elements such as copper, zinc, and tin, unlike indium and gallium of copper indium gallium diselenide. Various sized and stoichiometric kesterite combined with microbial facilitation can enable inexpensive solar cell device as an absorbing layer and that can be applicable to various substrates such as conventional soda lime glass or even flexible substrates, accordingly, enable to adapt various processes such as role-to-role, printing, and spray.

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