

Sustainable Metals for Next Generation Solar Cells



Goal

We integrate sustainable metal inks with dispense printing that produces improved solar cell electrodes to reduce the cost of solar energy.

Our Idea

With the recent growth of the solar industry, it has become one of the world's largest consumers of silver, which is mostly used for the screen printing of electrodes. The price of silver is highly volatile and is responsible for a large portion of solar cell manufacturing costs. Dispense printing of sustainable metal inks eliminates the inefficient use of silver and can be done at mild temperatures compatible with next generation solar cell architectures. These characteristics make this process an ideal candidate for low-cost next generation solar cells processing.

We propose to greatly lower the cost of solar cells by reducing the amount of silver required while also taking advantage of low-cost next generation solar cell technology.

Team and Partner Organization

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Demo Day Deliverables



- Chemical compatibility of sustainable metal ink with perovskite solar cells
- Successful dispensing of sustainable metal ink on a perovskite
- Ensure performance of the perovskite is not degraded by sustainable metal ink



- Show comparable performance using the National Renewable Energy Lab's (NREL) cell efficiency certification
- Show comparable reliability of sustainable metal ink metallization on perovskite solar cells using NREL's reliability testing

Impact

By reducing the amount of silver used per solar cell by 80% and achieving improved electrical performance of the solar cell we can lower the cost of solar energy. Sustainable metal inks are also capable of being easily recyclable while maintaining improved electrical performance which will enable the sustainable future of solar energy.

