

Sustainable and resilient social system for healthy nature

R&D Project Title : Development of integrated systems of power generation and agriculture based on effective utilization of solar energy

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Summary :

Organic solar cells (OSCs) are emerging as novel renewable energy sources due to their distinctive features of light weight, large-area processability, flexibility, and color tunability. To solve the social issues of food and energy shortages, we aim to establish new type of agricultural OSC technology, which is completely different from the existing agrivoltaics of solar sharing system based on silicon solar cell. In this project, we will develop green-light wavelength-selective OSCs and near-infrared wavelength-selective OSCs, whose transmitted blue and red light can be effectively used to promote plant growth. As a result, these OSCs can be integrated to greenhouses not only for generating electricity but also for improving crop yield.

