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Characterization of UV fluorophores for application to luminescent solar concentrators KAITLIN HELLIER, SUE CARTER, UC Santa Cruz — The implementation of solar as an alternative energy source faces many challenges, including the competition for space with agriculture and the environmental impacts of solar farms in deserts. As a solution to these problems, the Carter Lab has developed Luminescent Solar Concentrator (LSC) panels for applications to greenhouses. These panels utilize a luminescent dye compatible with the spectrum used in photosynthesis for the plants below and front-facing PV cells, achieving power enhancement of greater than 20% compared with the cells alone. To increase this enhancement, additional portions of the unused spectrum must be harvested. In this talk, we will discuss the characterization of UV absorbing fluorophores, including spectra, quantum yield, and the enhancement of light output and power generation. We will also address the combination of these UV dyes with the original LSC dye in low and high concentration, and the FRET efficiency and potential applications associated with high concentration films.

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