



Green Energy Production by Bioluminescent Algae

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Single-celled algae, or dinoflagellates, convert light to chemical energy through photosynthesis. Some ocean species are bioluminescent and re-emit photons as a blue-green flash during the night in response to mechanical deformation. We plan to utilize this process of bioluminescence, an evolutionary energy storage and delivery technique, to continuously power a solar cell. These algae also consume carbon dioxide in order to produce the proteins necessary for luminescence. Our goal is to measure the power output and carbon dioxide consumption of our bioluminescent algal colony, which will provide proof-of-concept for a scalable combination of solar and bioluminescent systems.