

Pre-Lab Exercises

Lab #10: Organic Photovoltaics

MIT Nanomaker_Spring 2013

- 1) Read about dye-sensitized solar cells in the MIT Technology Review article, and watch the Millenium Technology Prize video on Michael Grätzel:
<http://www.youtube.com/watch?v=3GAlvFDSNa4>**
- 2) What are some of the advantages of dye-based cells compared to more conventional thin film solar cells? What is the efficiency of dye-based cells, and how does that compare to what's been reported for silicon solar cells?**
- 3) One of the advantages of dye-based solar cells is their insensitivity to the incident angle of light, making them more appropriate for conversion of diffuse light compared to conventional cells. Why might explain this angular insensitivity?**
- 4) In this lab, you will be making a simple Gratzel solar cell using natural dyes from crushed berries. What does the color of the berry tell you about the light that it is absorbing?**
- 5) Using your cellphone spectrometer, how would you measure the absorption spectrum of a dye?**

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