

Measurement Sheet

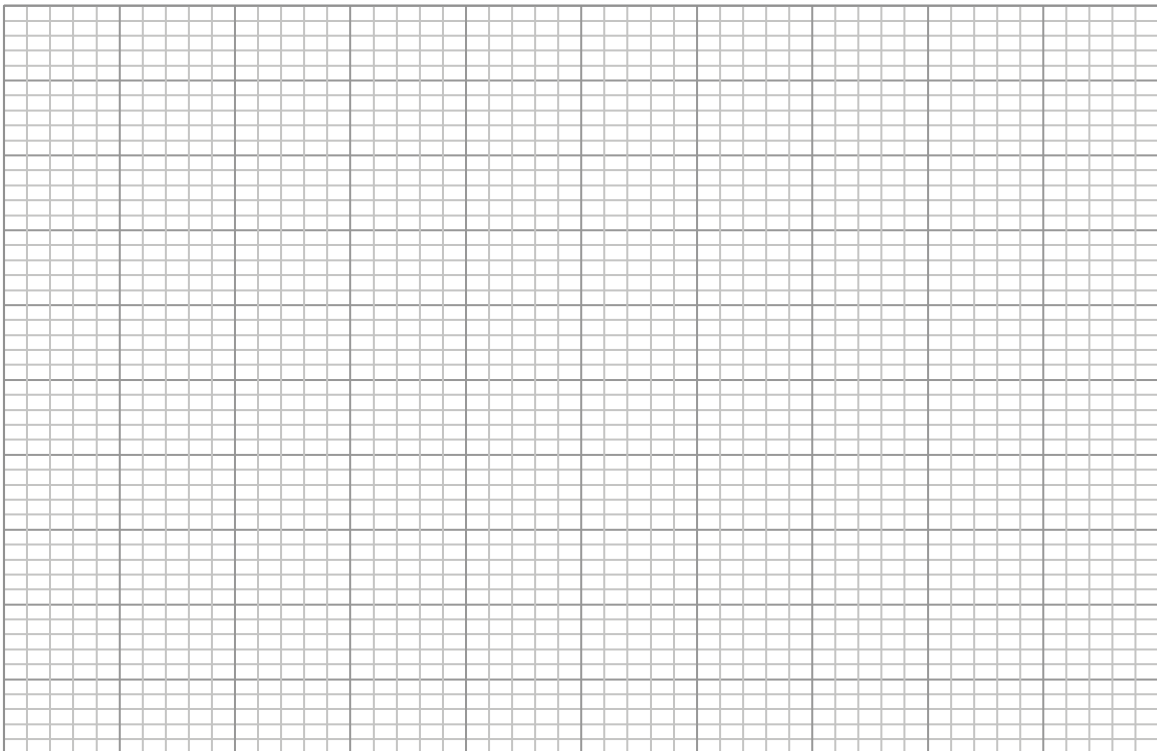
Lab #4: Organic LED

MIT Nanomaker_Spring 2013

Experiment #1: Electrical Characterization of OLED

You are given a power supply and use alligator clips to connect it to your OLED. Record voltage (between -3V and 3V) vs current (mA) of the device.

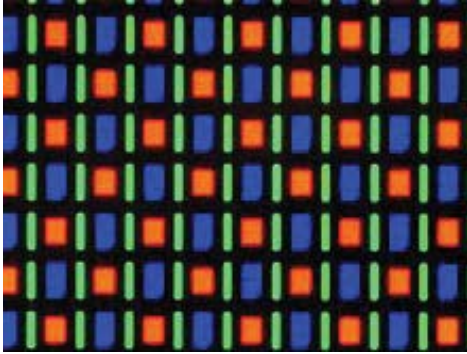
- 1) IV curve of OLED



- 2) What is the threshold voltage? Is it a diode?

Follow-up Questions:

- Why are pixel sizes shown here not the same for R, G, and B?



Courtesy of [Matthew Rollings](#) at [en.wikipedia](#). CC-BY-3.0.

- Are glow sticks also based on electroluminescence like OLED? Explain.

- How to explain the emission color of quantum dots with the Heisenberg uncertainty principle?

- A dye laser is a laser which uses an organic dye as the lasing medium, usually as a liquid solution. It can usually be used for a much wider range of wavelengths and tunable lasers and pulsed lasers. An electron in a long, organic molecule used in a dye laser behaves approximately like a particles in a box with width 4.18 nm. what is the wavelength of the photon emitted when the electron undergoes a transition (a) from the first excited level to the ground level and (b) from the second excited level to the first excited level? (Hint: the energy level: $E_n = n^2 h^2 / 8mL^2$)

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