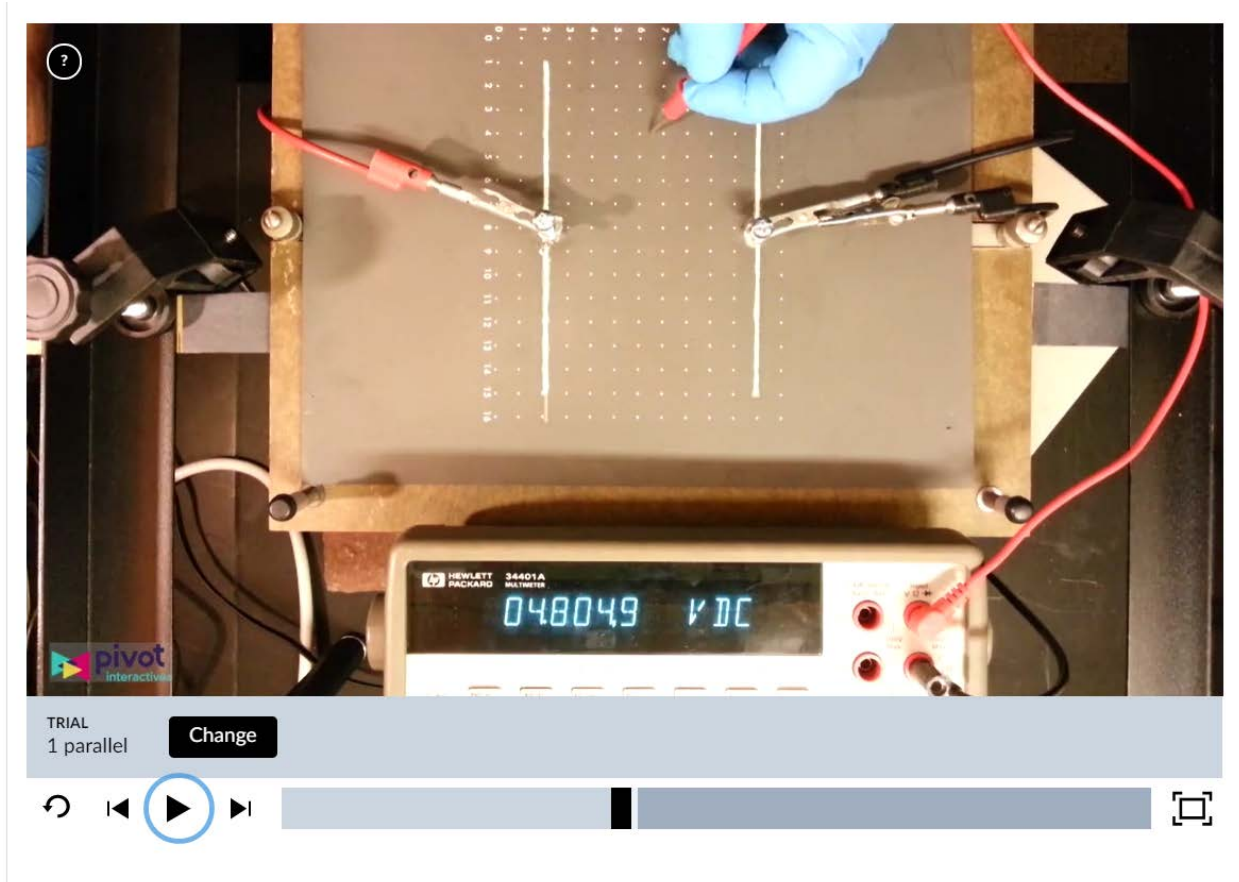


Pivot Capacitor Potential and Field

We will use a video from the Pivot Interactives service to examine the electric potential and field inside a capacitor.

Access the Pivot Interactives lab “Capacitor Potential and Field”. If you run the video for a little while, you will see something like this:



We have discussed the parallel plate capacitor in class. What you see above is a two-dimensional equivalent. The two lines on the paper are made with conducting paint. The paper is resistive paper – electric current can flow through it as it does through a resistor of the type we discussed during the first month of class.

We will use the above setup where the potential difference between the two plates is set using a power supply and the potential at each point is determined using a metal probe and a multimeter.

Once you start running the video, you will see a gloved hand measuring the potential at a series of points, starting at the edge of the capacitor. Wait until the hand starts measuring the potential near the center of the plate to start writing down the potential and the horizontal

location where each potential measurement is taken. Record this data from one plate to the other.

Then open a spreadsheet and type the data in a two-column format so that the horizontal position is in the left-hand column and the potential is in the right-hand column. Do not include the measurements made right on the plates. Then make a scatter plot of the data (the potential should be on the y-axis and the position on the x-axis). Try a trendline using a polynomial fit. Is the data well described by a line? Or is a higher degree polynomial required to describe the data well?

Now that you have a functional form for the potential, calculate the electric field strength. Is it constant or does it change as the horizontal position changes?

Open a Word document and type the answers to these questions, and take a screen shot of your plot that includes the trendline equation.

Convert your Word document to pdf and submit it via Canvas.