University of Alabama
Department of Physics and Astronomy

PH 115 / LeClair Fall 2019

# PH 115 Lab 14: Electrostatic simulations

In today's lab we will investigate charge distributions and electric forces. You can find the applets here:

https://phet.colorado.edu/en/simulation/balloons

https://www.physicsclassroom.com/Physics-Interactives/Static-Electricity/Put-the-Charge-in-the-Goal/Put-the-Charge-in-the-Goal-Interactive

## Exercise I

1. Open up the first applet, "Balloons and Static Electricity."

2. Following the on-screen instructions to run the applet.

3. Explore the applet a bit and describe your findings. **Type your responses into,** *e.g.,* **Word or Notepad as you are doing this, your lab report will be entirely electronic.** While you may work together, please submit your own report on BlackBoard.

4. In particular, try to explain the physical mechanism of charging involved, and the effect that the charged balloons and sweater have on each other and the nearby wall.

5. Keep your document open for the second exercise ...

## Exercise II

After you have finished the first exercise:

1. Go back to the second applet, "Put the charge in the goal."

2. Complete at least levels 1 and 2, and take a screenshot of your working configuration(s). Try another level if you have time.

3. Which is harder to work with? Attractive or repulsive forces? Try to solve one of the harder challenges (anything after level 1) using only positive and only negative charges, respectively.

## Finishing

1. Your lab report document should contain clearly marked, well-reasoned, and (reasonably) grammatically correct responses to all of the questions for both exercises.

2. Your lab report should include screenshots of charge configurations, which should be embedded within your electronic lab report.

3. You may work together and complete a single document for your group, but you should each submit your own version on BlackBoard.