Electrostatics

After completing this section, students should be able to do the following.

- distinguish between the distance vector and

- vector at a point whose length describes strength of the field

- Identify charge of electron, neutron and proton

- State and explain Coulombs law

- Apply Coulombs law using vector algebra to find electrostatic force at a point due to several point charges

- Explain definition of electric field

- Derive and calculate electric field due to several point charges using vector algebra

- Define conditions under which Gausss law can be used.

- Outline steps necessary to apply Gausss law

- Derive electric field due to line and sphere of charge

- Discuss analogy of circuits with water pipes

- Define potential as difference in potential energy per charge

- Derive potential of point charge

- Find electric field from potential and vice versa

- Define capacitance

- Derive capacitance of simple symetrical structures.

- Explain displacement current

- Describe how materials affect electric fields.

Learning outcomes:
Author(s): Milica Markovic