Field (physics): a physical object exists at every point in space

A field is a medium that you can interact with if you possess the property of the filed cares about

Creating an electric field: Meeds a source charge to alter the region around the source charge

Need a test field to check the electric field

Etest = Fbysource/qtest unis N/C

Units are similar to N/kg

Electric field vectors always point away from positive sources: + .--> –

F→bysource = qtest \* E→test Proton charge = +e Electron charge = –e 1.6\*10-19 C

Proton: F→bysource = e \* E→test

Electric field for a point charge: suppose a source of positive charge

(+) A----- E→A ------->

E→A = F→bysource / qA,test

E→A = Fbysource / qA,test

F→elec = oofpez \* qsrc \*qA,testr^ / (qA,test |r→|2)

Eelctric field of helium atom, He+ assume electron is test charge

ER = oofpez qsrc / |r|2

|r→| = R = 0.0269 nm

q = 2e = 3.8E-19 C

==> ER 3.98E12 N/C

What direction is the electric field?

The electric field points away from the positive charge. This creates an electric field that points radially outwards.

F→–  = q– E→

F→– = (-1.6E-19C) \* 3.98E12 N/C radially inwards

LINEAR SYSTEMS

THE PRINCIPLE OF SUPERPOSITION “The net response caused by two or more stimuli is the sum of the responses that would have been caused by each stimulus individually”

E→point = [Sig]E→i,src

E→on = 2p→ / 4PiEps0