em Documentation

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CONTENTS

CHAPTER

ONE

COLLEGE ELEKTRISCHE EN MAGNETISCHE VELDEN

Elektrische velden

Krachtveld en elektrisch veld

Elektrische kracht ten gevolge van twee ladingen q_1 en q_2

$$\vec{F} = \frac{1}{4\pi\varepsilon_0}\frac{q_1 q_2}{r^2}\hat{r}$$

Elektrisch veld

$$\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{q}{r^2}\hat{r}$$

Kracht op en testlading q in een elektrisch veld:

$$\vec{F} = q\vec{E}$$

Superpositie

$$\vec{E} = \vec{E_1} + \vec{E_2} + \vec{E_3} + \cdots$$

CHAPTER

TWO

SOFTWARE

Contents:

class em.**BField**

Calculate the Magnetic Field using wire elements.

$$B = \frac{\mu_0 \cdot I}{2\pi r}$$

We calculate $\vec{B}$ as being perpendicular to $\vec{r}$

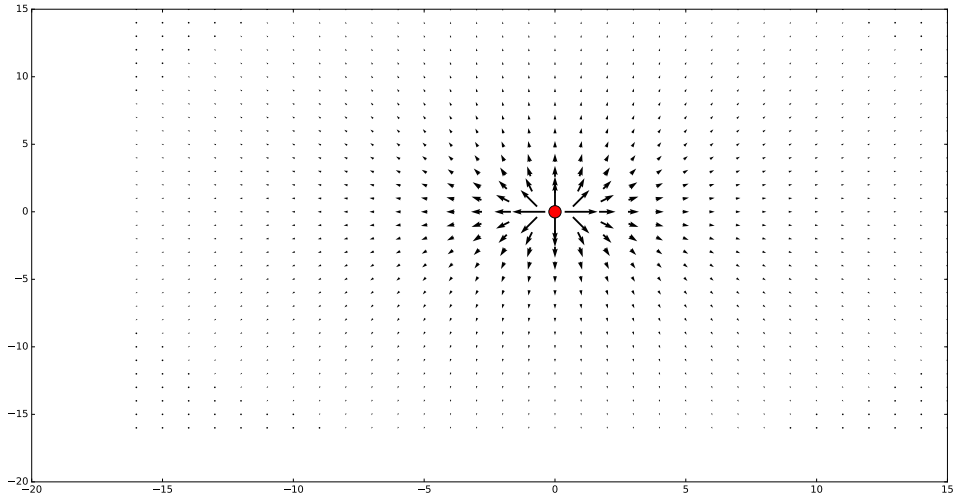
class em.**EField**

Calculate the Electric Field using point charges.

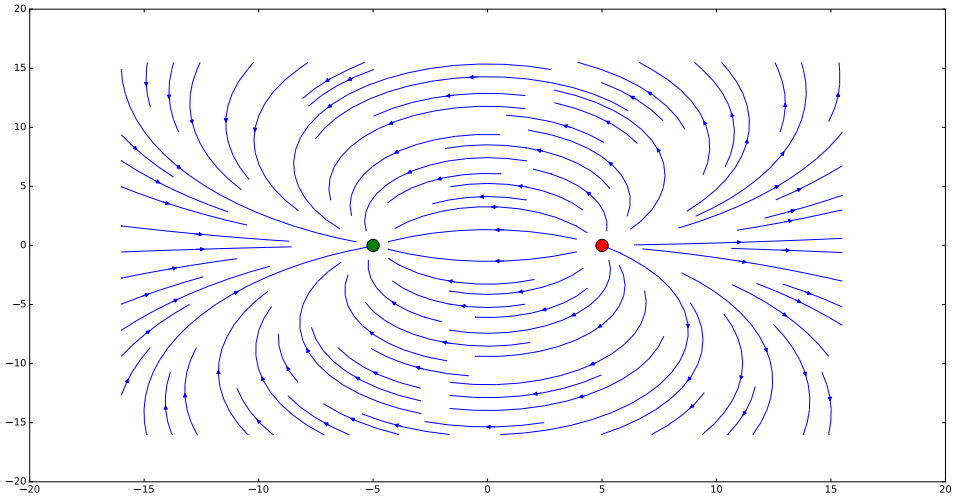
$$E = \frac{1}{4\pi\varepsilon_0}\frac{|q|}{r^2}$$

We calculate $\vec{E}$ as being parallel to $\vec{r}$

```
>>> import em
>>> E = em.EField()
>>> E.add(0,0,3e-9)
>>> E.plot()
>>> E.save('./pics/onecharge.pdf')
```



```
>>> import em
>>> E = em.EField()
>>> E.add(5,0,3e-9)
>>> E.add(-5,0,-3e-9)
>>> E.plot("line")
>>> E.save('./pics/twocharge.pdf')
```



class em.**Field**

The main field object, E and B are derived from this

Contains the meshgrid and plot functions

plot(*<type>*)

plot("vector"), plot("line"), plot("vetor and line")

CHAPTER

THREE

INDICES AND TABLES

- genindex
- modindex
- search

e

B

E

F

P