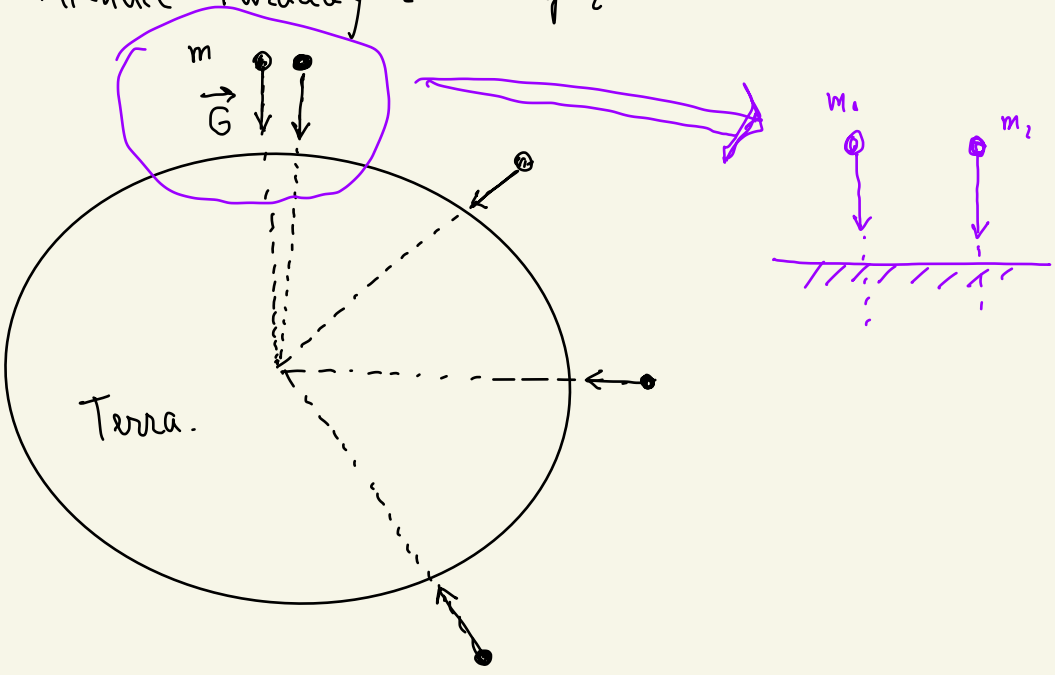
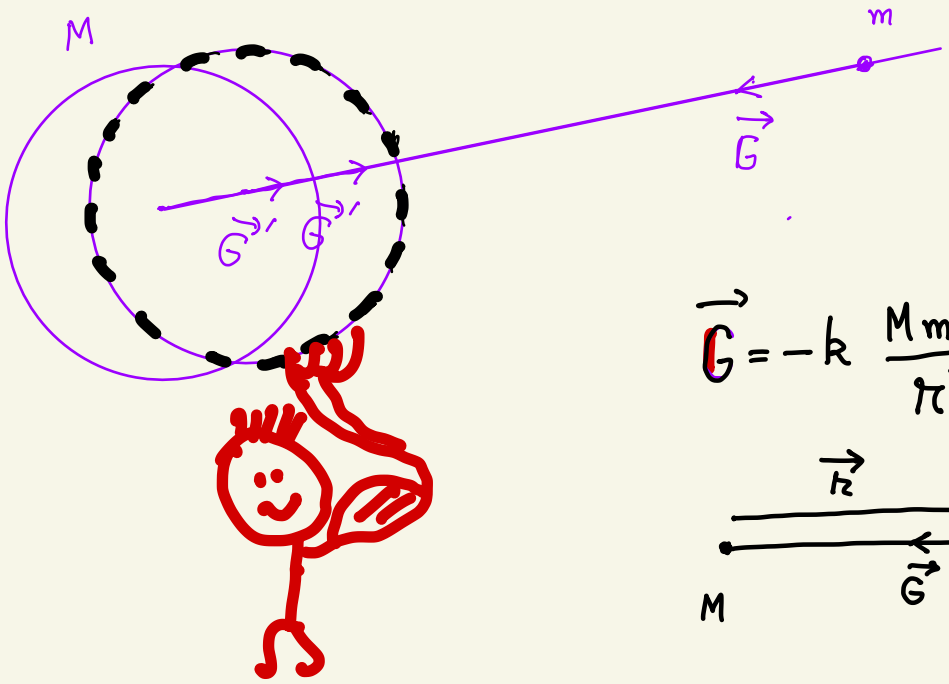
5 Ianuarie 2022

Câmpul electric. Intensitatea câmpului electric.

Michael Faraday ← englez.

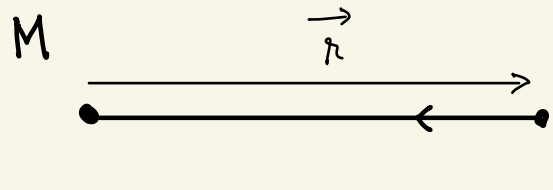




$$\vec{G} = -k \frac{Mm}{r^3} \vec{r}$$

Cutie neagră

Câmp ≡ proprietăți alterate ale spațiului



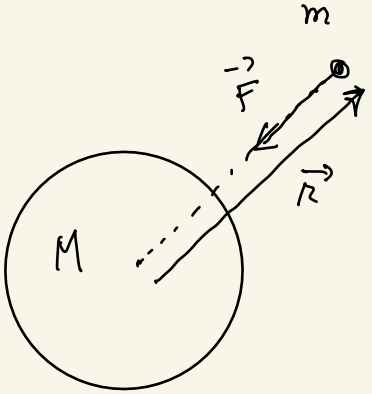
$$\vec{F} = -k \frac{Mm}{|\vec{r}|^3} \vec{r}$$

$$\vec{F} = m \left(-k \frac{M}{r^3} \vec{r} \right)$$

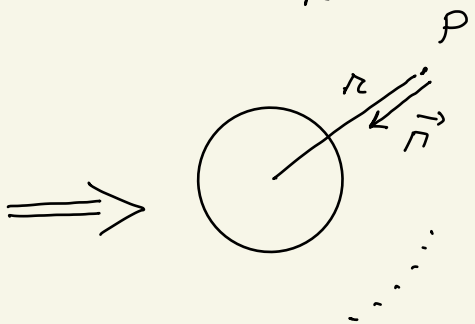
$$\boxed{\vec{\Gamma} = -k \frac{M}{r^3} \vec{r}}$$

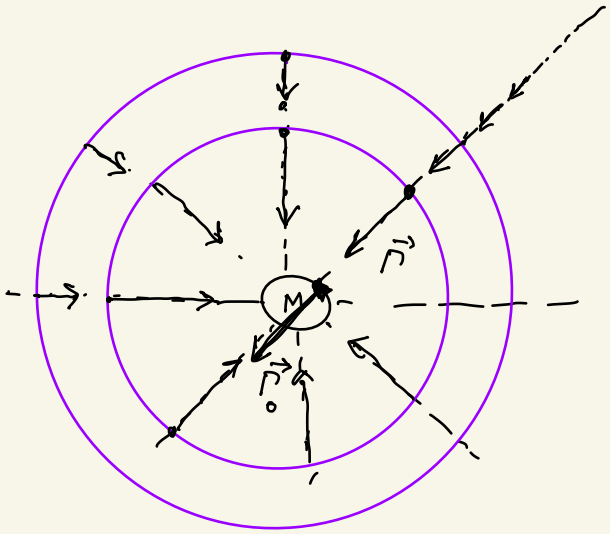
intensitate a câmpului gravitational produs de M în locul în care este colocviul de masă m.

$$\vec{F} = m \vec{\Gamma} \Rightarrow \vec{\Gamma} = \frac{\vec{F}}{m}$$



$$\vec{\Gamma} = -k \frac{M}{r^3} \vec{r}$$





$$\vec{F} = m\vec{\Gamma}$$

Pe suprafața planetei: $\vec{F} = m\vec{\Gamma}_0$

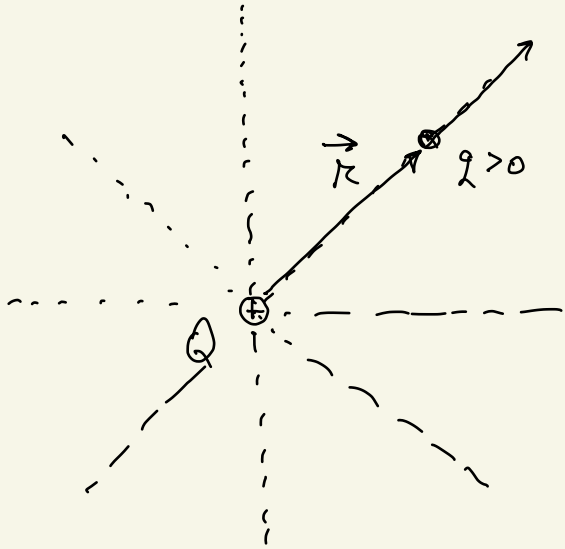
$$\vec{\Gamma}_0 = -k\frac{M}{R_p^3}\vec{R}_p$$

$$|\vec{\Gamma}_0| = \left|-k\frac{M}{R_p^3}\vec{R}_p\right| = \frac{kM}{R_p^2} =$$

$$= \frac{6{,}67\cdot 10^{-11}\cdot 6\cdot 10^{24}}{6300\cdot 10^3}\ \frac{N}{kg} \simeq 9{,}8\ \frac{N}{kg}.$$

$$\vec{F} = m\vec{\Gamma}_0$$

$$\vec{G} = m\vec{g}_0 \Rightarrow G = mg_0$$



$$\vec{F} = k\,\frac{qQ}{r^3}\,\vec{r}$$

$$\vec{F} = q\left(\frac{kQ}{r^3}\,\vec{r}\right)$$

$$\vec{E}$$

intensitatea câmpului electric produs de sarcina Q la distanța r de ea.

$$\vec{E} = k\,\frac{Q}{r^3}\,\vec{r}$$