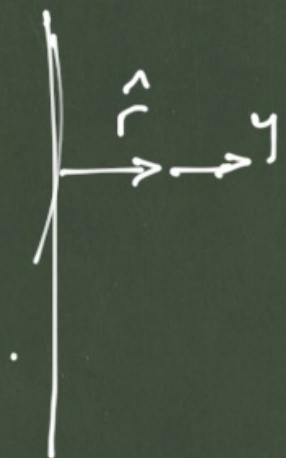
FILO $\bar{E} = \hat{r}\,\frac{2k_e\lambda}{r}$



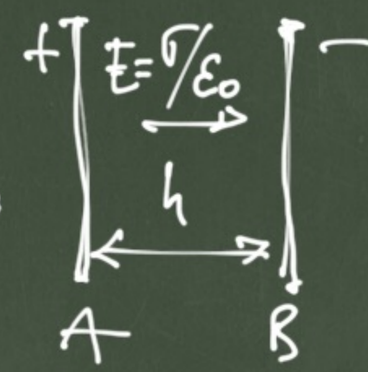
$$V_1 - V_2 = \int_{y_1}^{y_2} \frac{2k_e\lambda}{y}\,dy = 2k_e\lambda \lg y\Big|_{y_1}^{y_2}$$

$$= 2k_e\lambda \ln\left(\frac{y_2}{y_1}\right)$$

$$V = k_e\lambda \ln\left(\frac{L+\sqrt{L^2+y^2}}{-L+\sqrt{L^2+y^2}}\right)$$

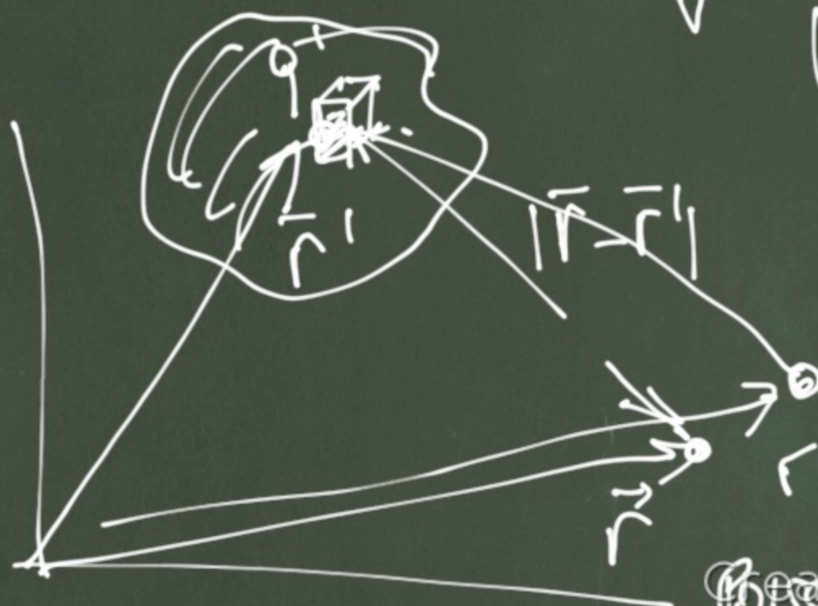
PIANO / I

$$\frac{\sigma}{\varepsilon_0}\int_0^h dx = \frac{\sigma h}{\varepsilon_0} = \Delta V_{AB}$$



$$dV(\vec{r}) = k_e \frac{dq'}{|\bar{r}-\bar{r}'|} = k_e \frac{\rho'(\bar{r}')\,d\bar{r}'}{|\bar{r}-\bar{r}'|}$$

$$\int dV = V(\bar{r}) = k_e \int_V \frac{\rho'(\bar{r}')\,d\bar{r}'}{|\bar{r}-\bar{r}'|}$$

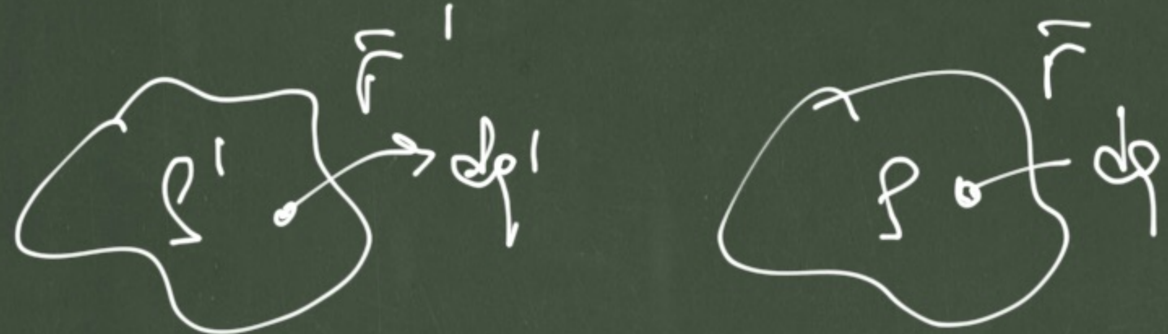


$\mathrm{div}\,\bar{E} = \rho/\varepsilon_0$

$\mathrm{div}\,\mathrm{grad}\,V = \rho$

$$\frac{\partial^2 V}{\partial x^2} = -\rho$$

Poisson



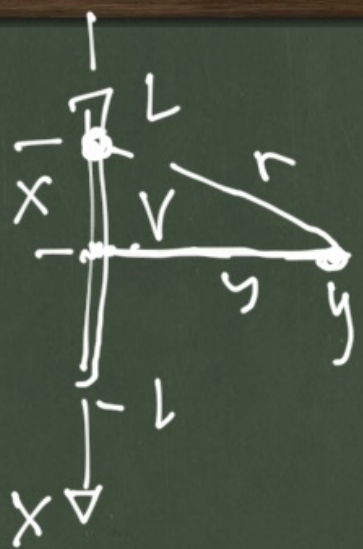
$$dU = \frac{dq'\,dq}{|\bar{r}-\bar{r}'|} = \frac{\rho'(r')d\bar{r}'\rho(r)dr}{|\bar{r}-\bar{r}'|}$$

$$V = \int\int d\bar{r}'d\bar{r}\,\frac{\rho'\rho}{|\bar{r}-\bar{r}'|}$$

numero

!

→ Hartree



$$V = k_e \lambda \int \frac{dx}{(x^2+y^2)^{1/2}}$$

$$= k_e \lambda \ln \left[\frac{L + (L^2+y)^{1/2}}{-L + (L^2+y^2)^{1/2}} \right]$$

DIPOLO $\quad \vec{p} = q\vec{d}$

$$V = k_e q \left[\frac{1}{r_p} - \frac{1}{r_n}\right]$$

$$= k_e q \left[\frac{r_n - r_p}{r_p r_n}\right]$$

$r_n, r_p >> d$

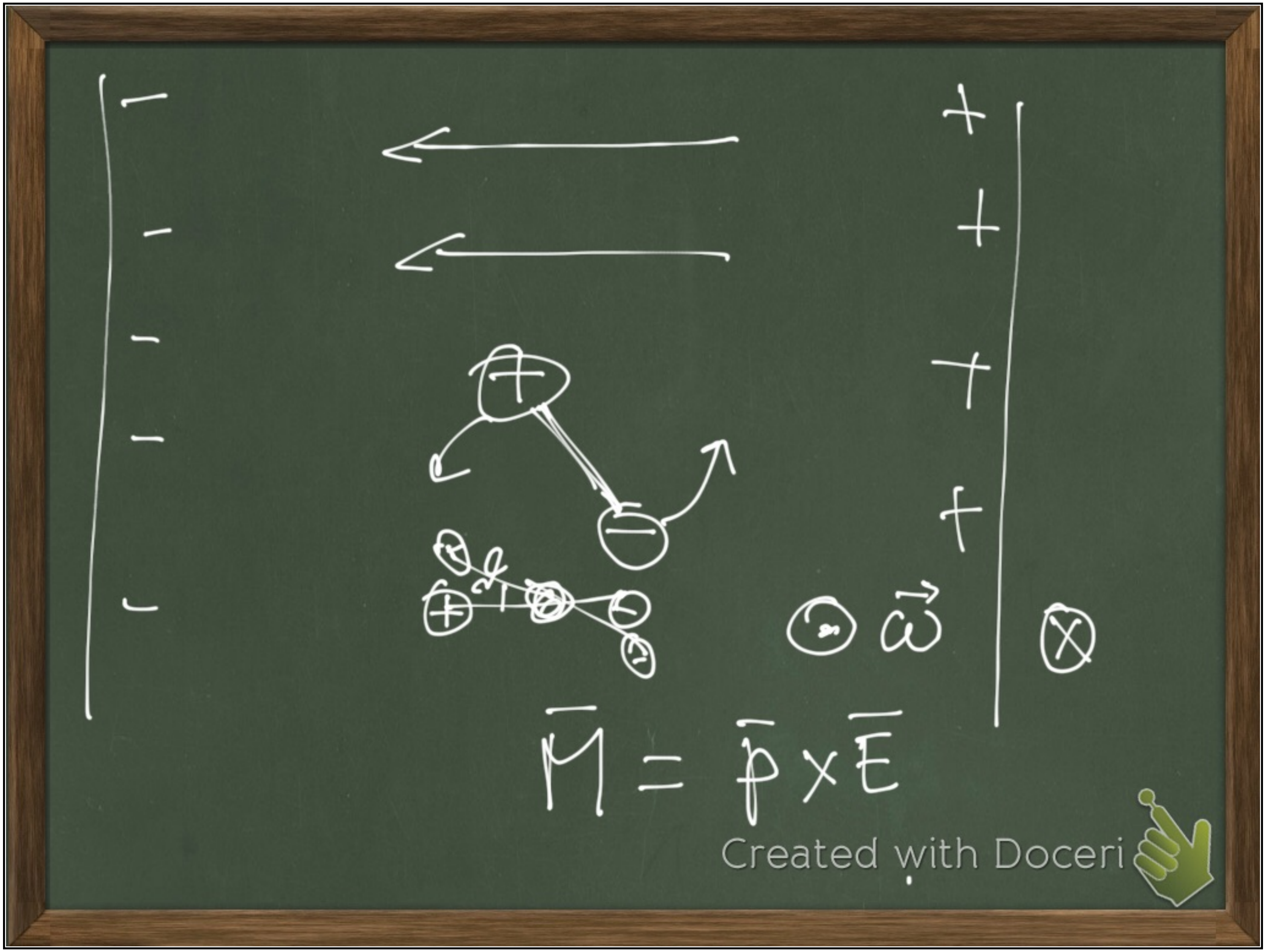
$$\sim k_e q \frac{d\cos\vartheta}{r^2}$$

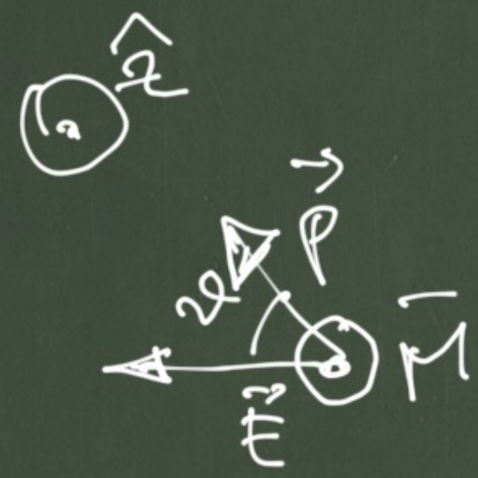
$\rightarrow \quad r_n r_p \sim r^2$

$\rightarrow \quad r_n - r_p \simeq d\cos\vartheta$

$$= k_e q \frac{\bar{d}\cdot\hat{r}}{r^2} = \boxed{k_e \frac{\bar{p}\cdot\hat{r}}{r^2}}$$

DIPOLO $\leftarrow V$


$\vec{\omega}$
$\bar{M} = \bar{p} \times \bar{E}$
Created with Doceri



$\odot$ in fuori

$\otimes$ in dentro

$$\bar M = E p \sin\vartheta \, \hat z$$

$$M = \frac{\partial U}{\partial \vartheta}$$

$$U = \int_0^{\vartheta} M \, d\vartheta' = E p \int_0^{\vartheta} \sin\vartheta' \, d\vartheta'$$

$$= (1 - \cos\vartheta) E p$$

$$\stackrel{!}{=} \cancel{pE} - E p \cos\vartheta$$

$$U = - \bar p \cdot \bar E$$

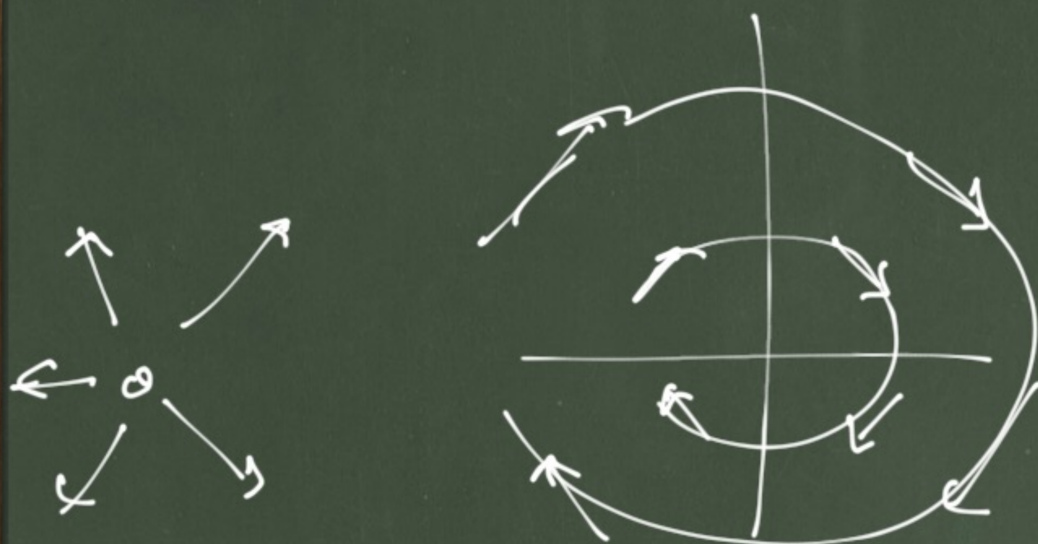
$$\oint_L \bar{E}\cdot d\bar{s} = 0$$

$$\boxed{\oint_S \mathrm{rot}\,\bar{B}\cdot dA = \oint_L B\cdot d\bar{l}}$$

$$\begin{vmatrix} \hat{x} & \hat{y} & \hat{z} \\ \frac{\partial}{\partial x} & \frac{\partial}{\partial y} & \frac{\partial}{\partial z} \\ E_x & E_y & E_z \end{vmatrix}$$

$$= \hat{x}\left(\frac{\partial E_z}{\partial y} - \frac{\partial E_y}{\partial z}\right) + \dots$$

$$\bar{u} = (y, -x)$$



$$\mathrm{rot}\,\bar{u} = -2\hat{z}$$

$$\int_S \operatorname{rot}\vec{E}\cdot d\vec{A} = \oint \vec{E}\cdot d\vec{s}$$

$$\boxed{\operatorname{rot}\vec{E} = 0}$$

II Maxwell

$$\Updownarrow \; \forall A$$

$$\oint \vec{E}\cdot d\vec{s} = 0$$

CAMPO ELETTROST.

$\Downarrow$

CONSERVATIVO

IRROTAZIONALE

(LAMINARE)