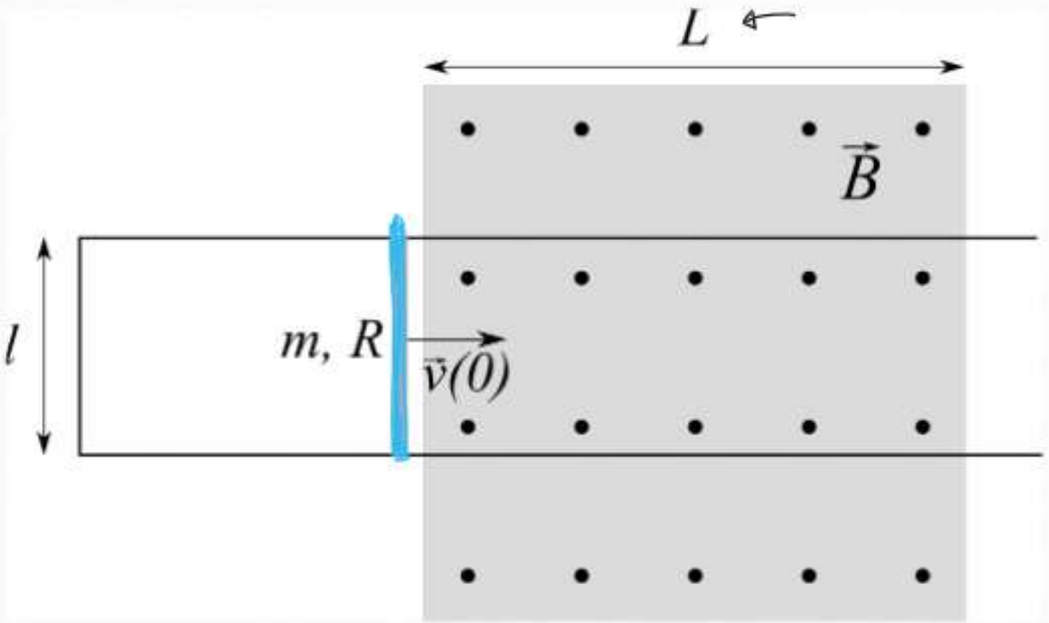


$m = 5\,g$, $L = 25\,cm$, $R = 15\,\Omega$, $L = 40\,cm$

$B = 2.5\,T$, $v(0) = 2.5\,m/s$

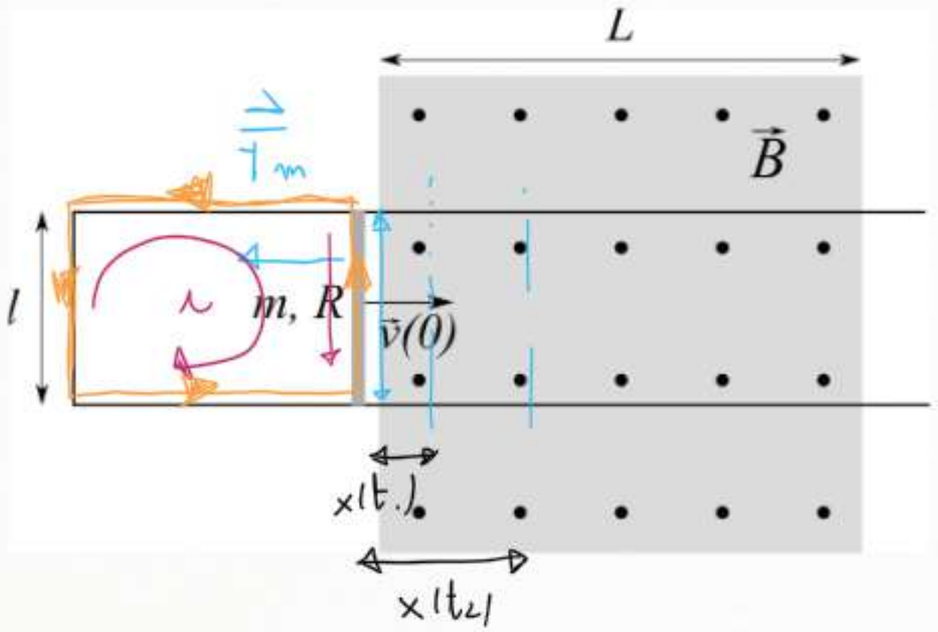
1) verso ed intensità della i indotta a $t = 0$

2) la carica fluita nel circuito dopo che la sbarretta è uscita dalla zona di campo

3) la velocità di uscita della sbarretta

4) L: la sbarretta si ferma completamente

$$\mathcal{E}_i = (-)\frac{d\overline{\Phi}(\vec{B})}{dt}$$



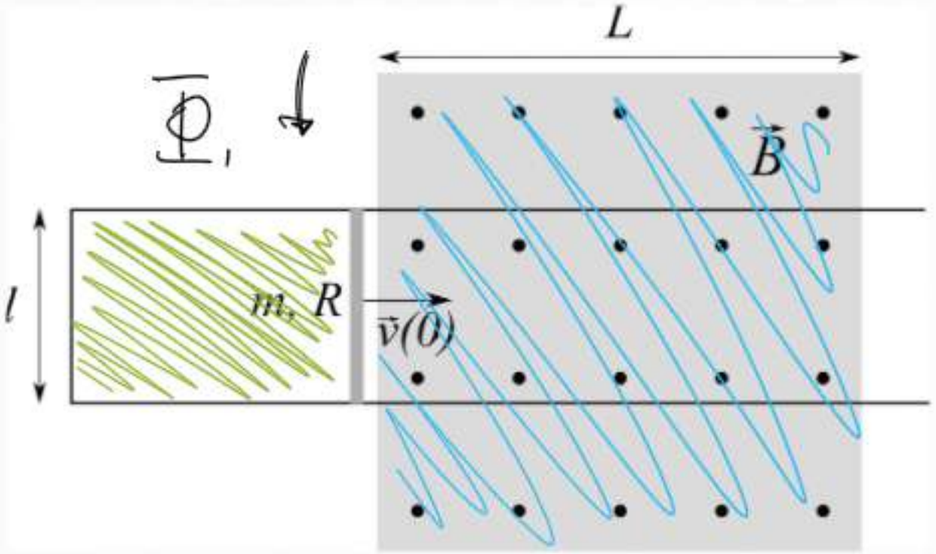
1) verso e intensità di i

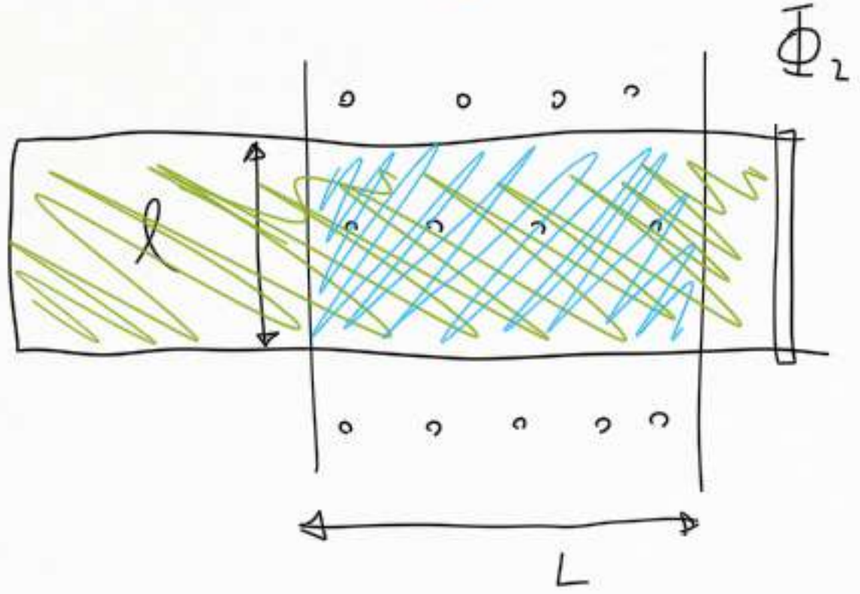
$\vec{F}_m = i\,\vec{l} \times \vec{B} \longrightarrow$ i scorre in v. orario

$\Phi_{c(t)}(\vec{B}) = B\,x(t)\,l \Rightarrow \dfrac{dx(t)}{dt} = \dfrac{dv(t)}{dt}$

$\mathcal{E}_i = -\dfrac{d\Phi}{dt} = -B\,l\,v(t) < 0 \Rightarrow i$ v. orario

$$i = \frac{|\mathcal{E}_i|}{R} = \frac{B l v(0)}{R}$$



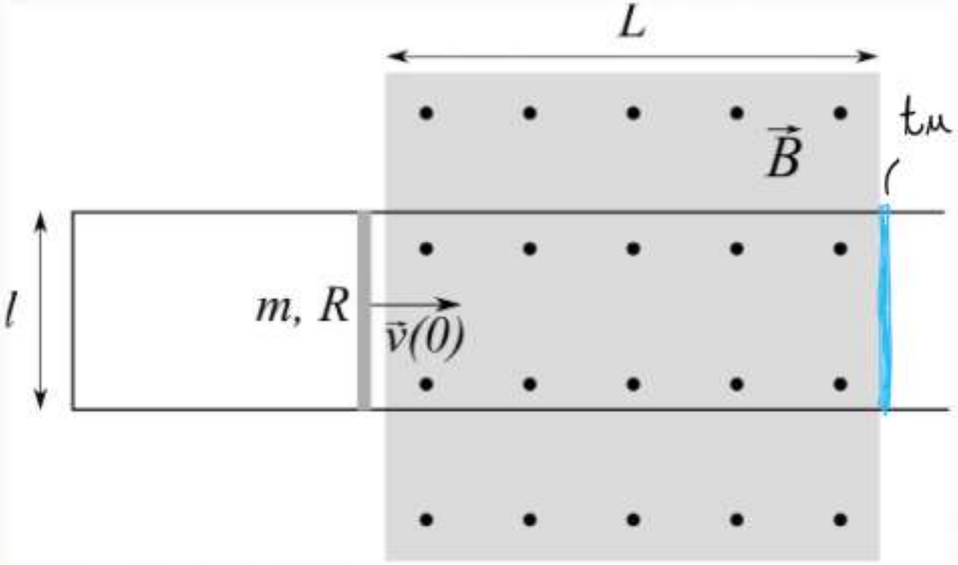


2) q

LEGGE DI FELICI $\left[q = \int_1^2 dq = \int_1^2 i\,dt = -\int_1^2 \frac{d\bar{\Phi}}{dt} dt \frac{1}{R} \right]$

$$q_{12} = \frac{\bar{\Phi}_1 - \bar{\Phi}_2}{R}$$

$$\left.\begin{aligned} \bar{\Phi}_1 &= 0 \\ \bar{\Phi}_2 &= BL\ell \end{aligned}\right\} \Rightarrow q_{12} = -\frac{BL\ell}{R} =$$



3) $v(t_м) = ?$

$$v(t) = v(0) + \int_0^t a(t')\,dt'$$

$$a(t) = \frac{F(t)}{m} = -\frac{i(t)lB}{m}, \quad i(t) = \frac{lBv(t)}{R} \Rightarrow$$

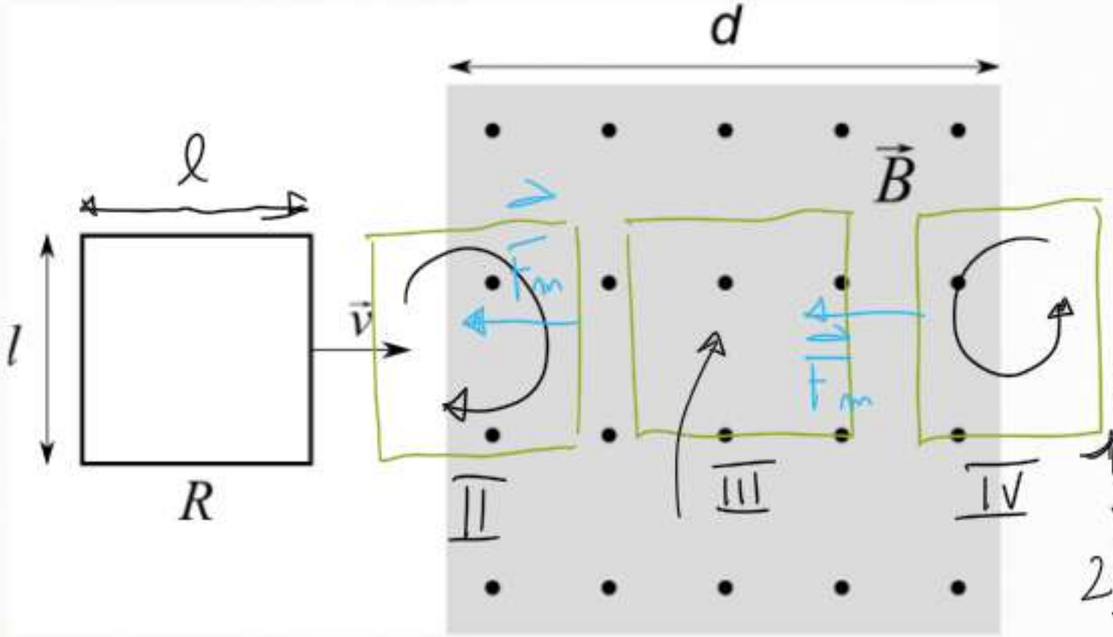
$$a(t) = -\underbrace{\frac{l^2B^2}{mR}}\,v(t) \Rightarrow \left(v(t) = \frac{dx}{dt}\right)$$

$$v(t_м) = v(0) + \int_0^{t_м} a(t)\,dt = v(0) - \frac{l^2B^2}{mR}\int_0^{t_м}\frac{dx}{dt}\,dt = v(0) - \frac{l^2B^2}{mR}\int_{x_0}^{x_м} dx =$$

$$\boxed{v(t_м) = v(0) - \frac{l^2B^2}{mR}L}$$

4) $L: v(t_м) = 0$

$$v(0) = + \frac{l^2B^2}{mR}L \Rightarrow L = \frac{v(0)\,mR}{l^2B^2}$$



$l = 12$ cm, $R = 25\ \Omega$

$v = 3$ m/s costante

$d = 2l$, $B = 4.5$ T

1) verso di i nelle varie fasi del moto

2) in quali regioni agisce una forza, quali ne verso e intensità

3) l'energia totale dissipata sulla resistenza (dopo che la spira è uscita)

4) Φ flusso

3) $W = \int \vec{F}_m \cdot d\vec{s} = \int \beta \, dt = -2Fl$

4) $q = \dfrac{\Phi_1 - \Phi_2}{R} = 0$