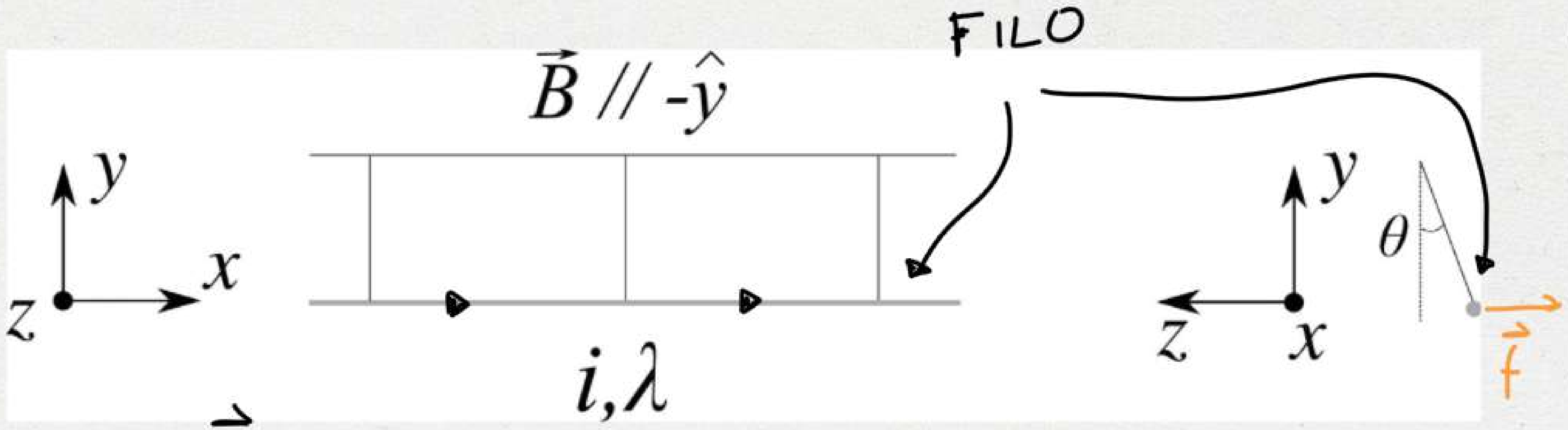


$\theta = 30^\circ = \frac{\pi}{6}$

$\lambda = 0.12 \ \frac{kg}{m}$

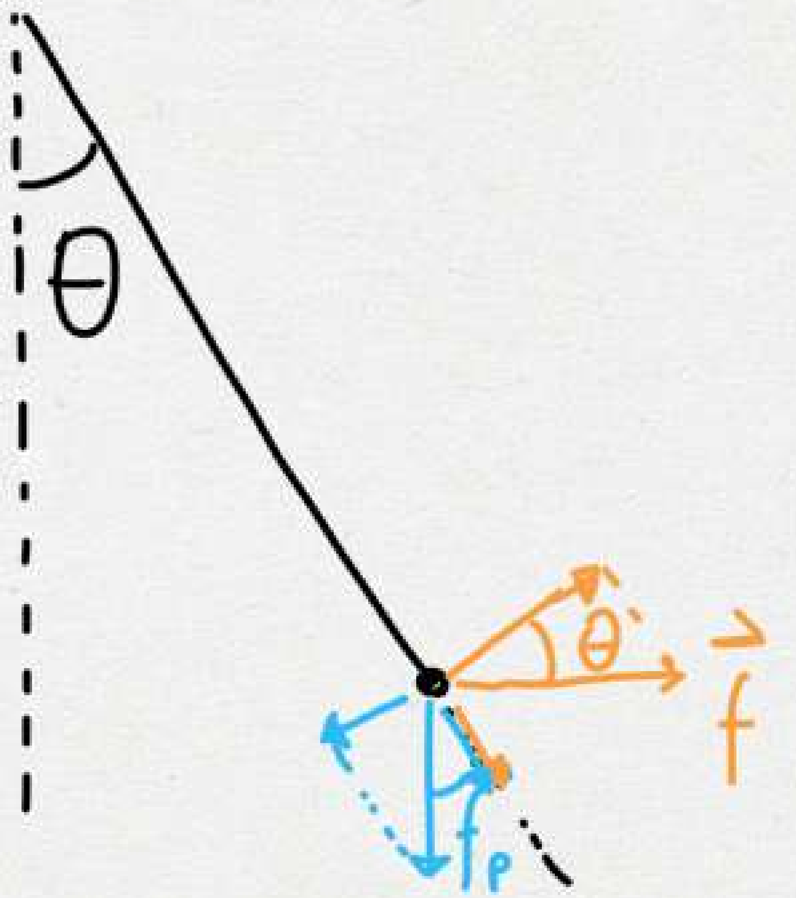
$B = 0.36 \ T$

$i = ?$

$\vec{f} = \frac{d\vec{F}}{dl} = i\,\hat{t} \times \vec{B}$, $f_p = \lambda g$

$\hat{t} = \pm \hat{x} \longrightarrow \hat{t} = \hat{x}$ VERSO DELLA CORRENTE

$\vec{f} \,//\, -\hat{z}$

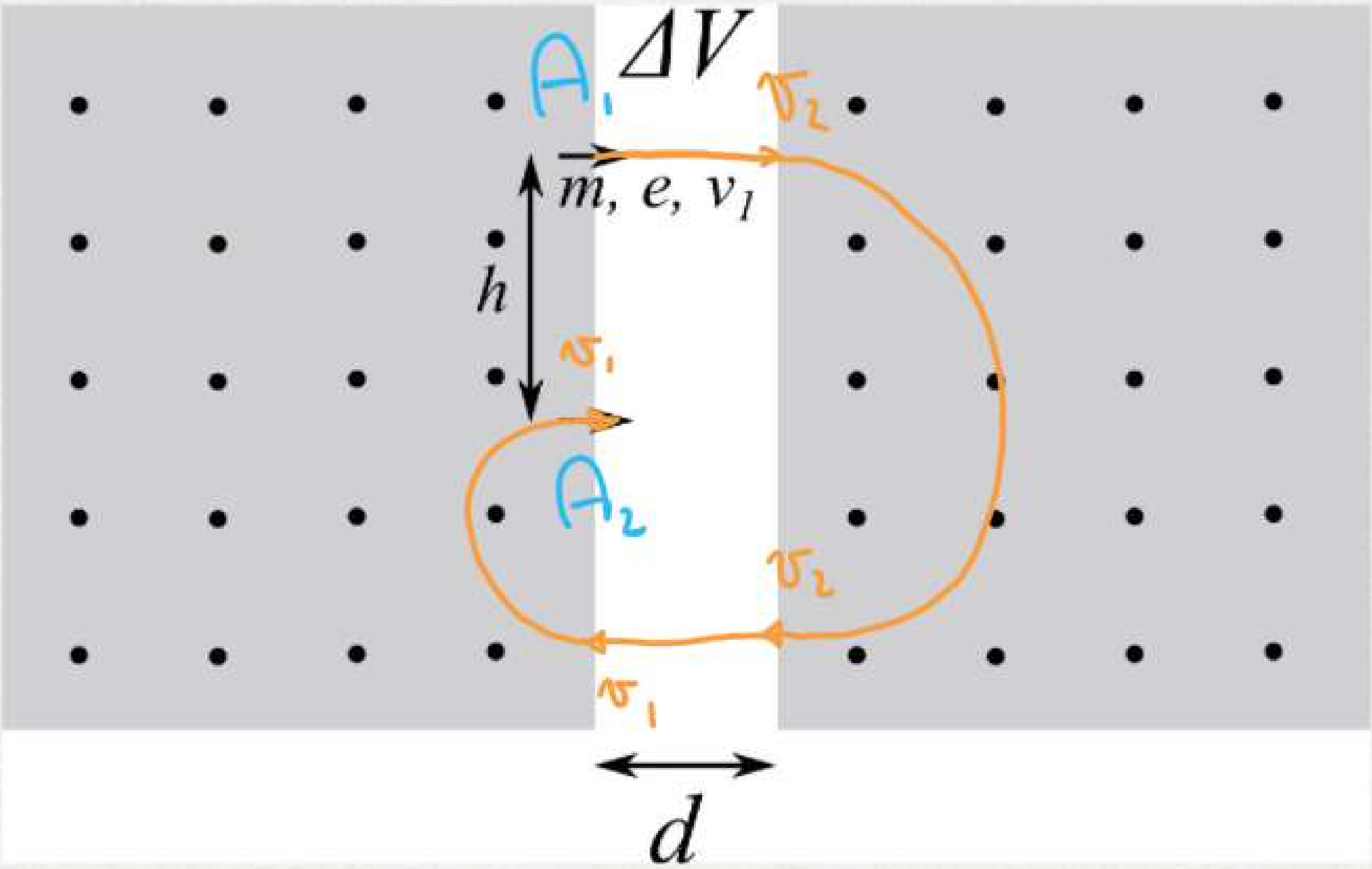


$\boxed{f_p \sin\theta = f \cos\theta} \Rightarrow$

$\lambda g \sin\theta = i B \cos\theta \Rightarrow$

$i = \frac{\lambda g}{B} \, tg\,\theta = 1.89 \ A$

6.11 - ESERCIZIO 52



$d = 4\,cm$, $B = 0.8\,T$, ΔV

$t_{TOT} = 1.22 \cdot 10^{-7}\,s$, $h = 5.2\,cm$

$(F = qE = ma)$

① $\Delta V = ?$

② $v_1 = ?$, $v_2 = ?$

$\boxed{r = \frac{mv}{qB}}$, $r_2 > r_1 \Rightarrow v_2 > v_1 \Rightarrow \Delta V > 0$

$x = x_0 + v_0 t + \frac{1}{2} a t^2 \leftrightarrow (v = v_0 + at)$

$t_{TOT} = 2t_G + t_1 + t_2 = 2t_G + T = 2t_G + \frac{2\pi m}{eB} \Rightarrow$

$t_G = \frac{t_{TOT} - T}{2} = 2 \cdot 10^{-8}\,s$

$h = 2r_2 - 2r_1 = \frac{2m}{eB}(v_2 - v_1) \Rightarrow v_2 - v_1 = \frac{eBh}{2m} = 2 \cdot 10^6\,m/s$

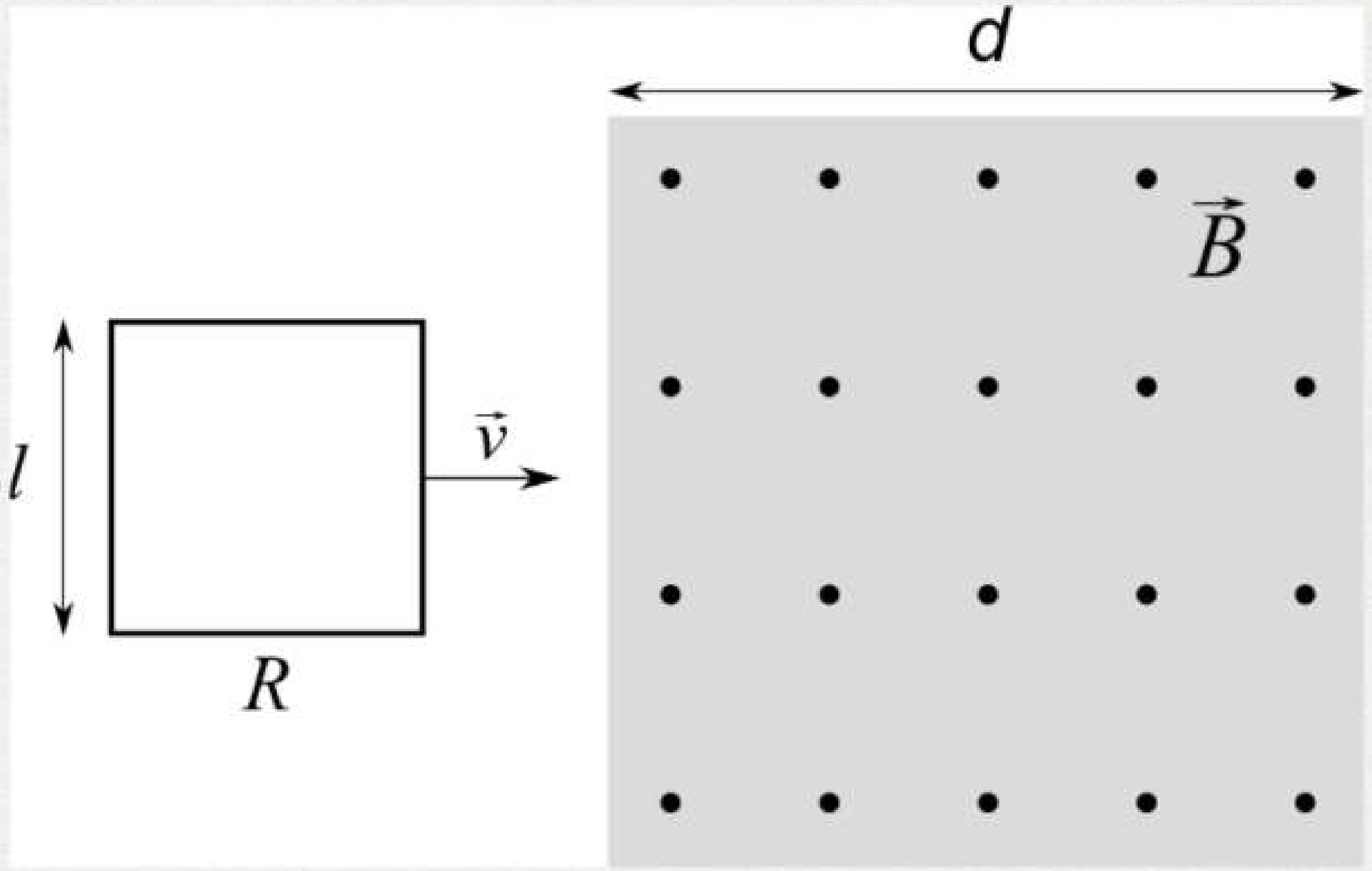
$v_2 = v_1 + a t_G = v_1 + \frac{\Delta V}{md} t_G \Rightarrow v_2 - v_1 = \frac{e \Delta V t_G}{md} \Rightarrow \Delta V = \frac{(v_2 - v_1) m d}{e\, t_G} = 4.18 \cdot 10^4\,V$

$$d = v_1 t_G + \frac{1}{2} a t_G^2 = v_1 t_G + \frac{1}{2} \frac{e\Delta V}{md} t_G^2 \Rightarrow$$

$$v_1 = \frac{d - \frac{e\Delta V}{md} t_G^2}{t_G} = 10^6 \ m/s$$

$$v_2 = 3 \cdot 10^6 \ m/s$$

$$\begin{cases} r = \dfrac{mv}{qB} \\ x(t) = x(0) + v(0) t + \frac{1}{2} a t^2 \end{cases}$$

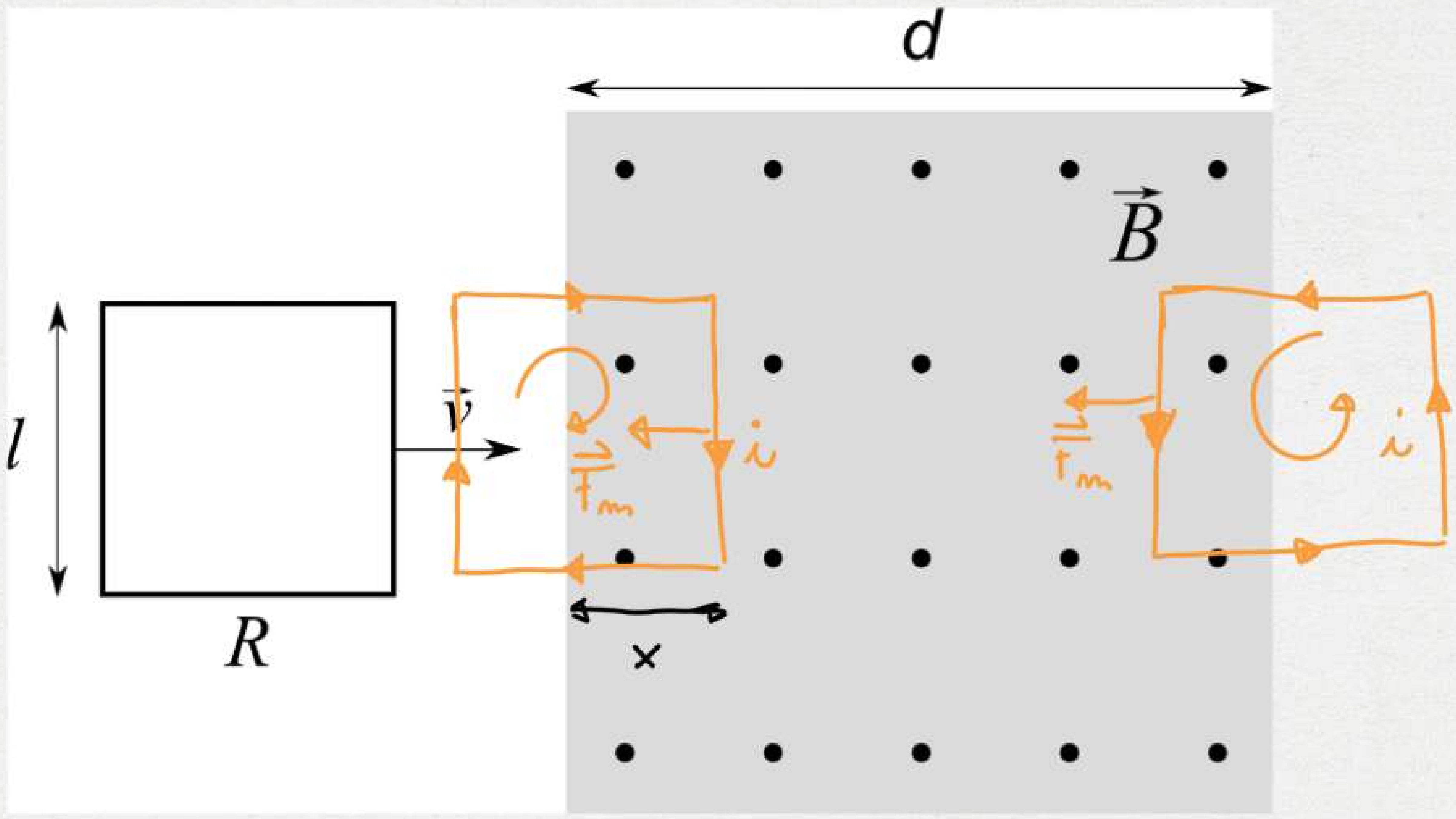


$l = 12\ cm$, $R = 25\ \Omega$, $v = 3\ m/s$

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

1. IL VERSO DI i INDOTTA NELLE VARIE FASI DEL MOTO
2. LA FORZA MAGNETICA CHE AGISCE SULLA SPIRA
3. L'ENERGIA TOTALE DISSIPATA DOPO CHE LA SPIRA È USCITA COMPLETAMENTE DALLA ZONA DI CAMPO
4. LA CARICA FLUITA NELLA SPIRA

$$\mathcal{E}_i = -\frac{d\Phi}{dt}$$



$$\vec{F}_m = i\vec{l}\times\vec{B} \Rightarrow$$

$$F_m = ilB$$

$$i = \frac{|\mathcal{E}_i|}{R}, \quad \mathcal{E}_i = -\frac{d\Phi}{dt}$$

$$\Phi = Blx \Rightarrow \mathcal{E}_i = -Blv \Rightarrow$$

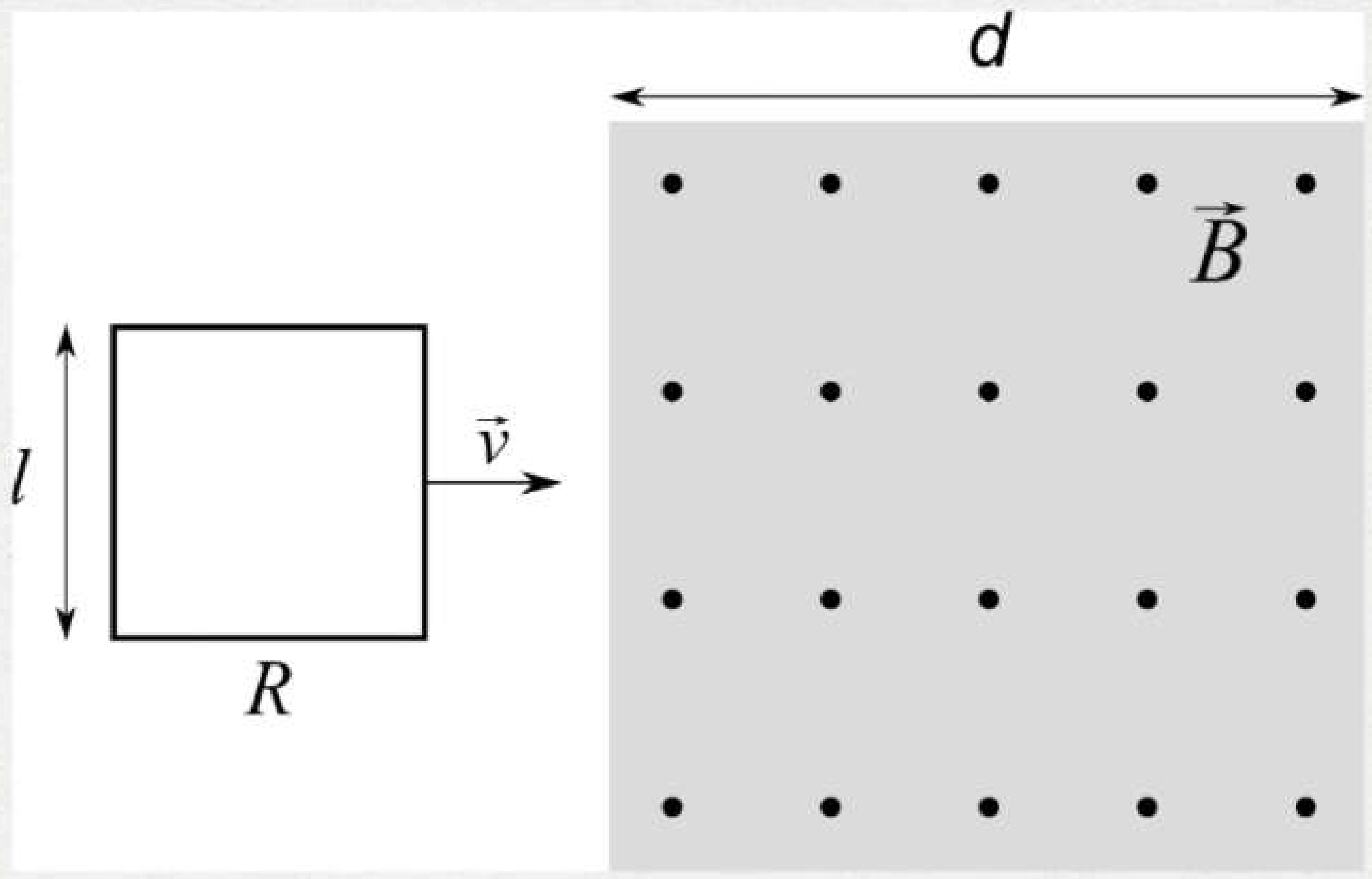
$$i = \frac{Blv}{R} \Rightarrow$$

$$F_m = \frac{B^2l^2v}{R}, \quad \vec{F}_m = -\frac{B^2l^2\vec{v}}{R}$$

③ $\vec{F}_{ext} = -\vec{F}_m \Rightarrow$

$$W = \int_{-\infty}^{+\infty}\vec{F}_{ext}\cdot d\vec{s} = \int_{-\infty}^{+\infty}F_{ext}\,ds = F_{ext}l + F_{ext}l = 2F_{ext}l = \frac{2B^2l^3v}{R} = 8.4\,mJ$$

$$W = \int_0^{\infty}P\,dt = \int_0^{\infty}Ri^2\,dt$$

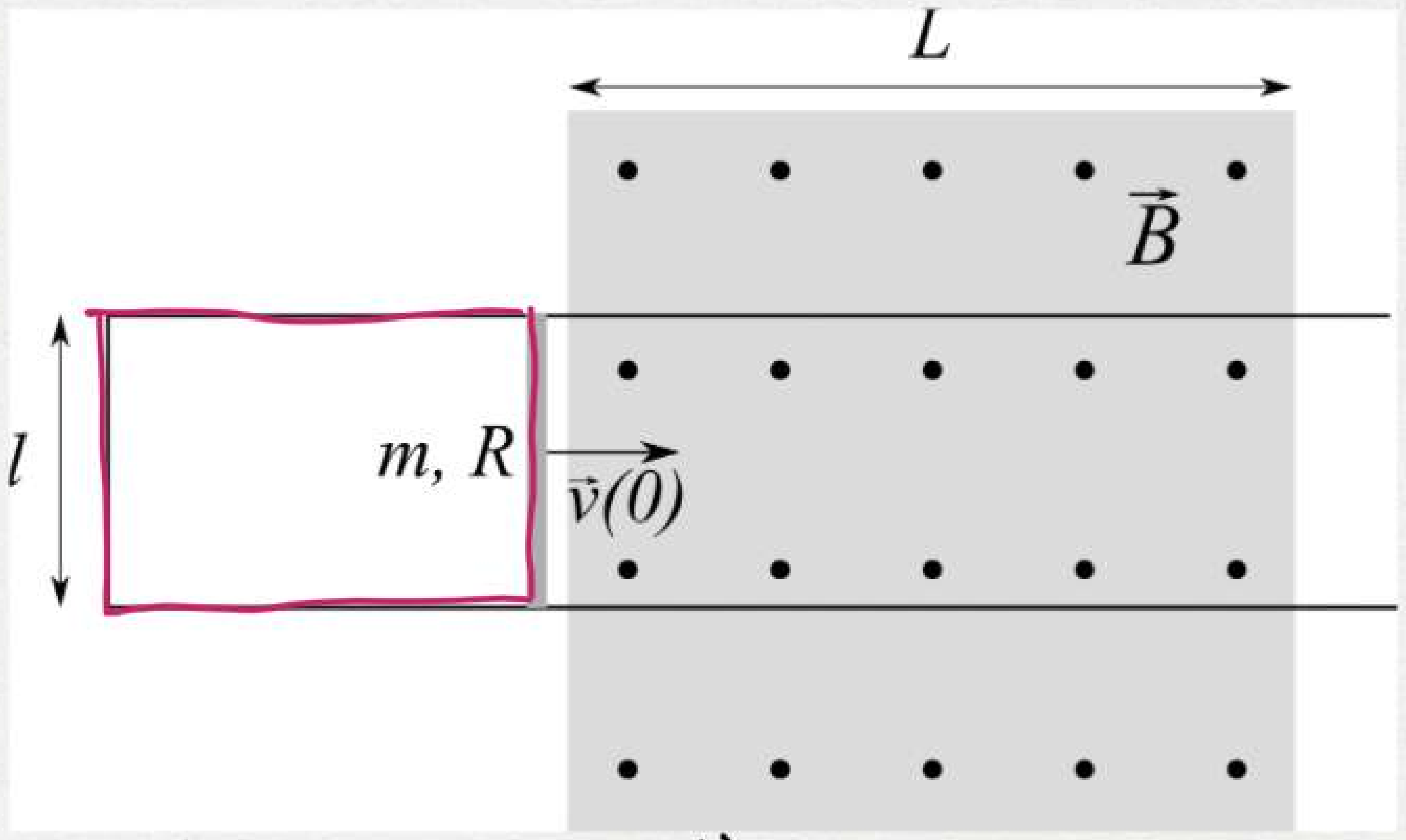


$$q = \int_0^\infty i\,dt = 0 \qquad \left(i = \frac{dq}{dt} \right)$$

LEGGE DI FELICI

$$q = \frac{\Phi_1 - \Phi_2}{R} = 0$$

$$|q|_{TOT} = \int_0^\infty |i|\,dt$$



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

$L = 40\,cm$, $B = 2.5\,T$, $v(0) = 2.5\,m/s$

1. calcolare $i(0)$ (verso e intensità)
2. q fluita dopo che la sbarretta è uscita dalla regione di campo
3. la v_{out} di uscita della sbarretta
4. per quale L si avrebbe $v_{out} = 0$

$v(t)$

$$i = \frac{Blv}{R}$$

$$F = i(t)\,l\,B$$

$$v(t) = \int a(t)\,dt = \frac{dx}{dt}$$