



INSTITUTO DE FÍSICA

uff Universidade Federal Fluminense


Física XX

Eletrostática

Aula anterior

- Cálculo de campo elétrico de distribuições contínuas.
- Campo de um disco.
- Campo de um fio, finito ou infinito.
- Lei de Gauss.

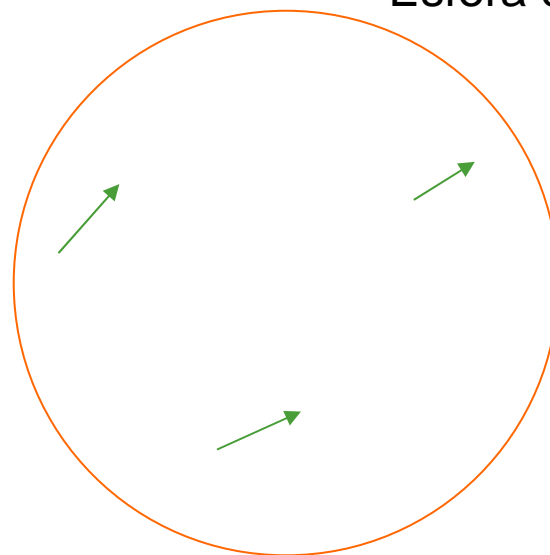
q



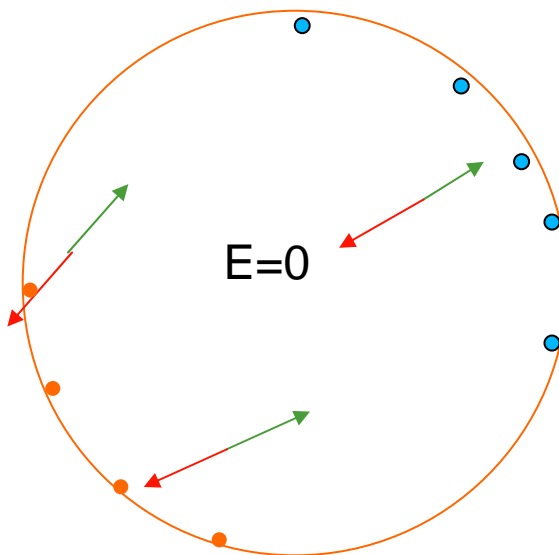
\vec{E}

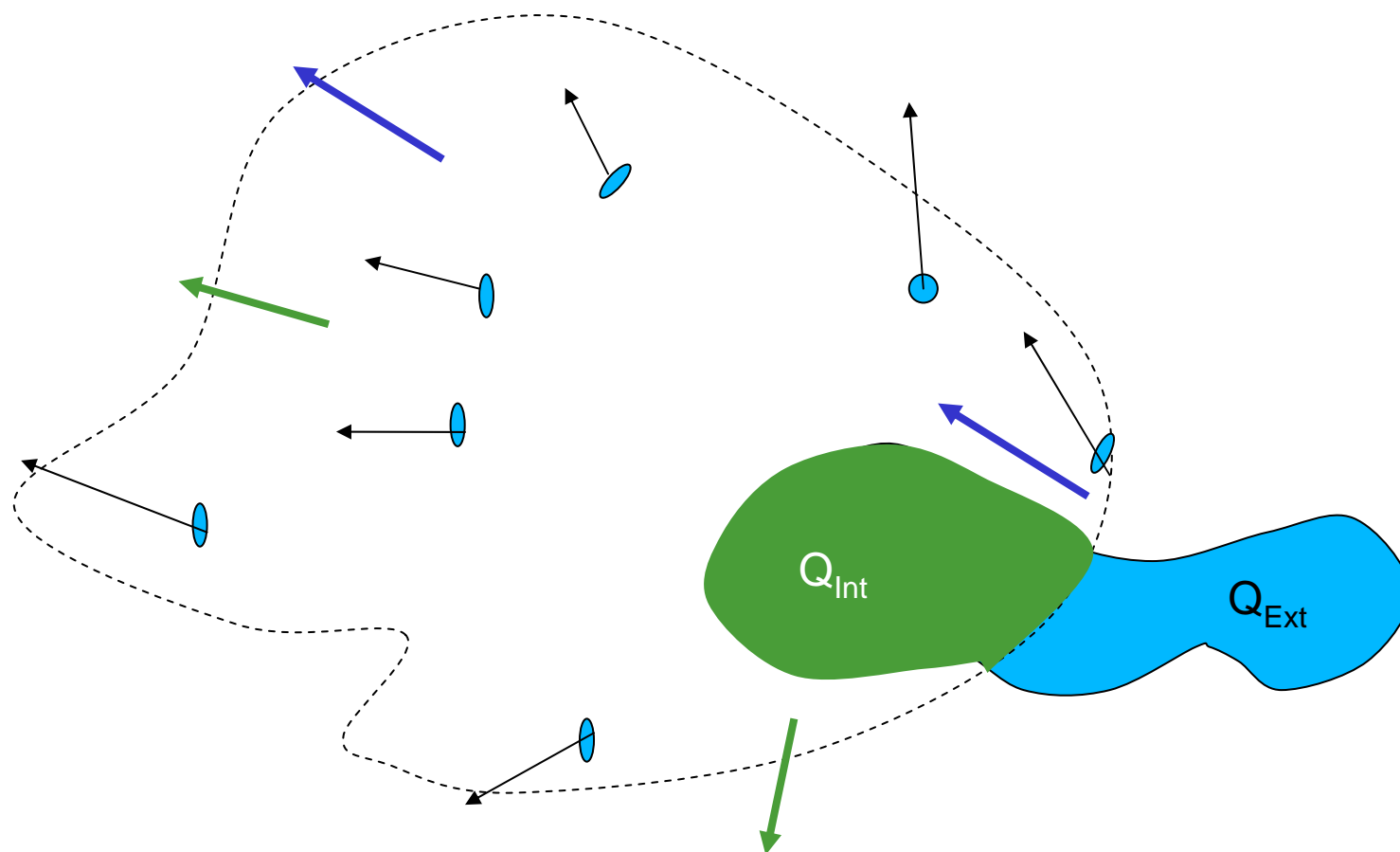


Esfera condutora

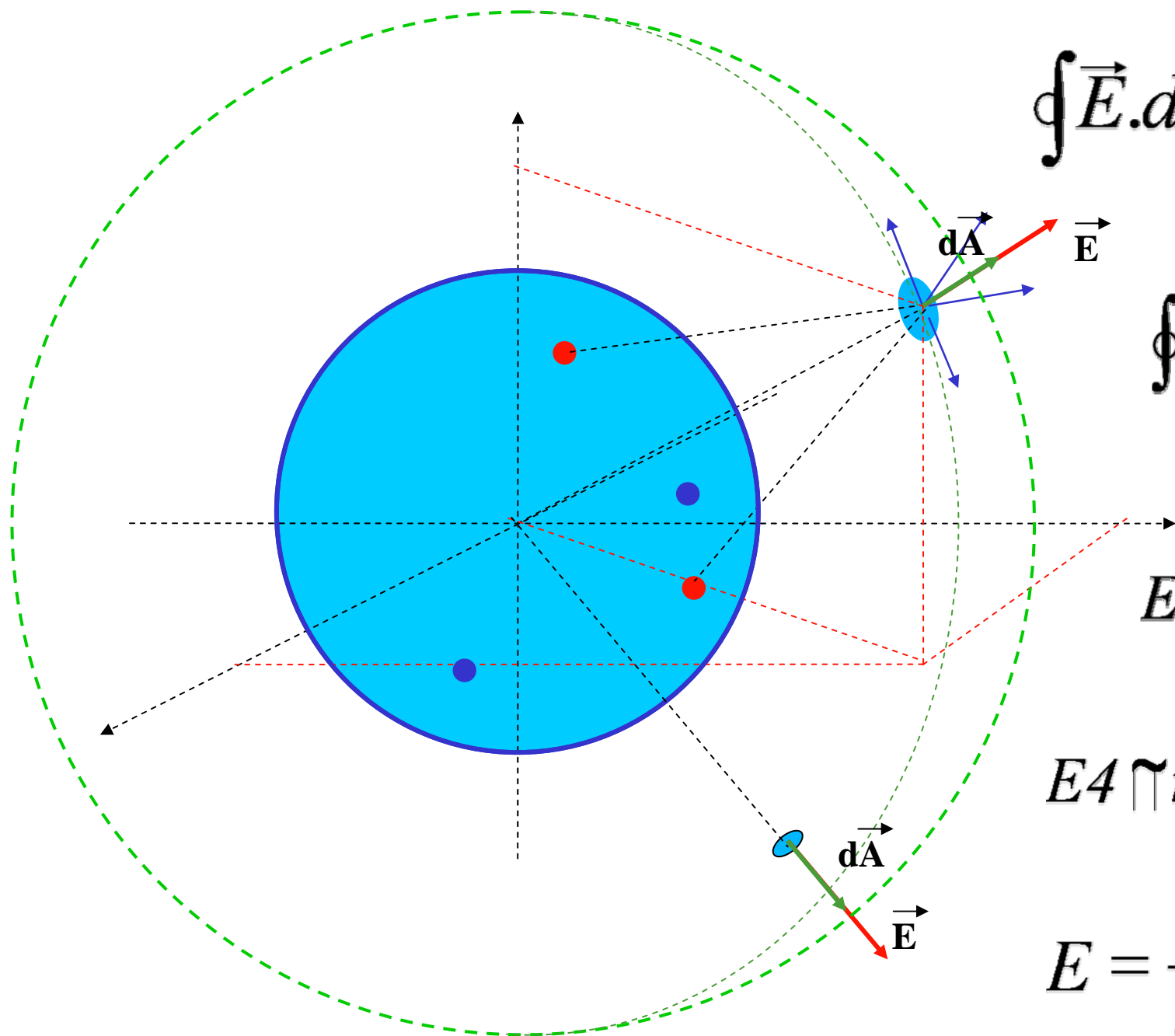


q





$$\oint \vec{E} \cdot d\vec{A} = \frac{Q_{\text{int}}}{\epsilon_0}$$



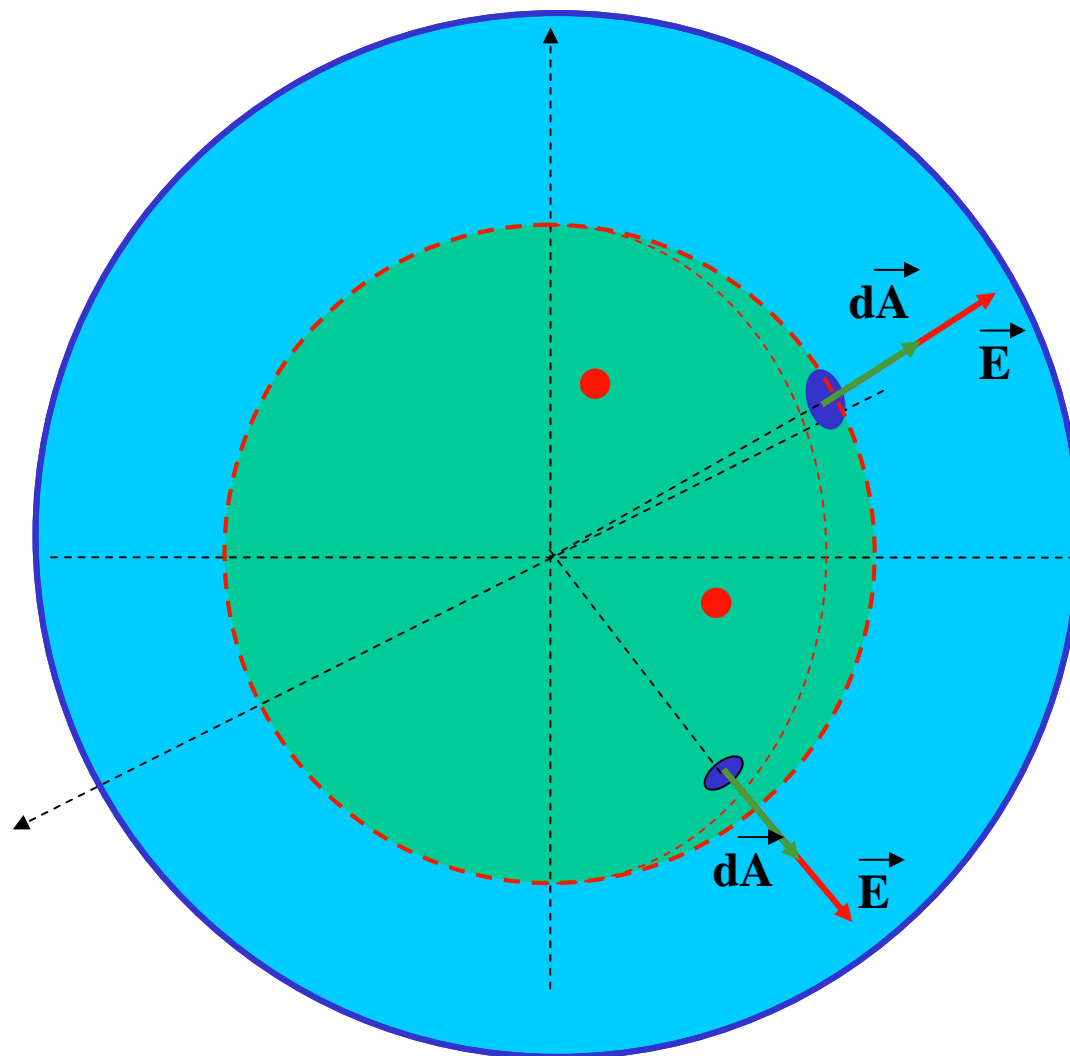
$$\oint \vec{E} \cdot d\vec{A} = \frac{Q_{\text{int}}}{\epsilon_0}$$

$$\oint E \cdot dA =$$

$$E \oint dA =$$

$$E 4\pi r^2 = \frac{Q_T}{\epsilon_0}$$

$$E = \frac{1}{4\pi \epsilon_0} \frac{Q_T}{r^2}$$



$$\oint \vec{E} \cdot d\vec{A} = \frac{Q_{\text{int}}}{\epsilon_0}$$

$$\oint E \cdot dA =$$

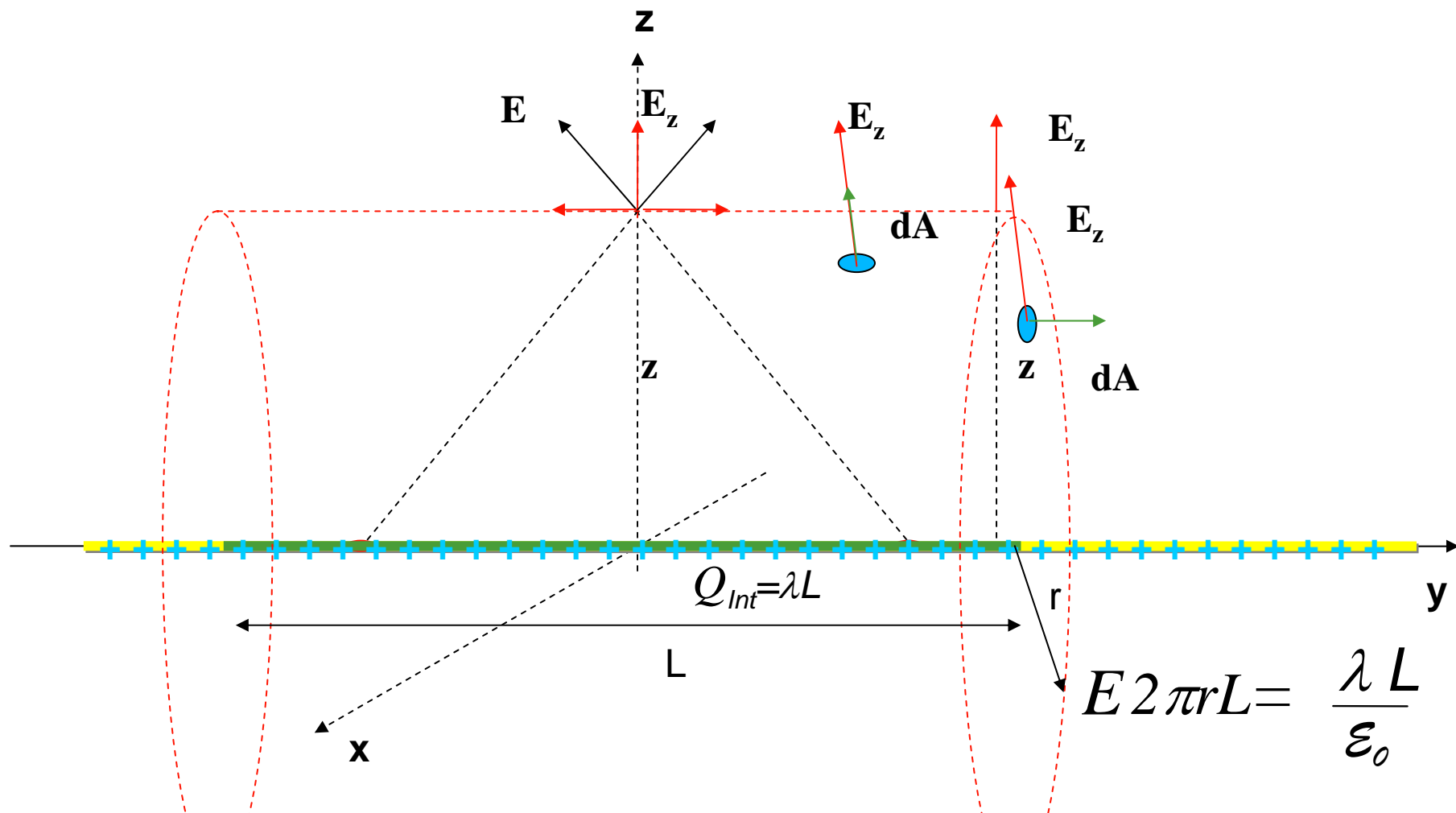
$$E \oint dA =$$

$$E 4\pi r^2 = \frac{Q_{\text{Int}}}{\epsilon_0}$$

$$\frac{Q_T}{V_T} = \frac{Q_{\text{Int}}}{V_{\text{Int}}}$$

$$Q_{\text{Int}} = \frac{Q_T}{\frac{4}{3}\pi R^3} \frac{4}{3}\pi r^3 = \frac{Q_T}{R^3} r^3$$

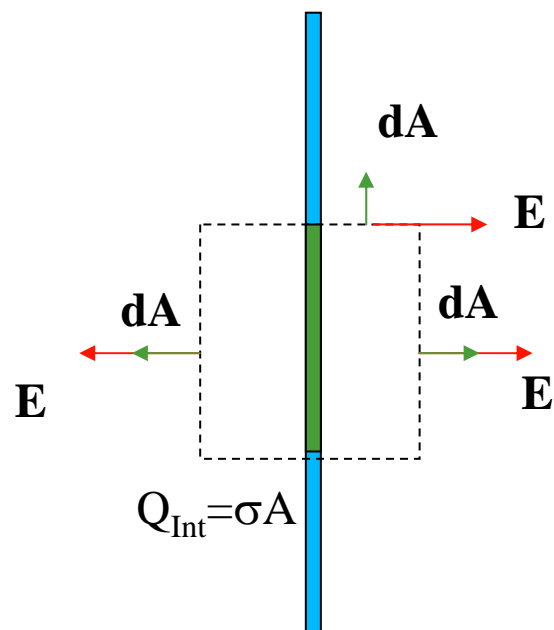
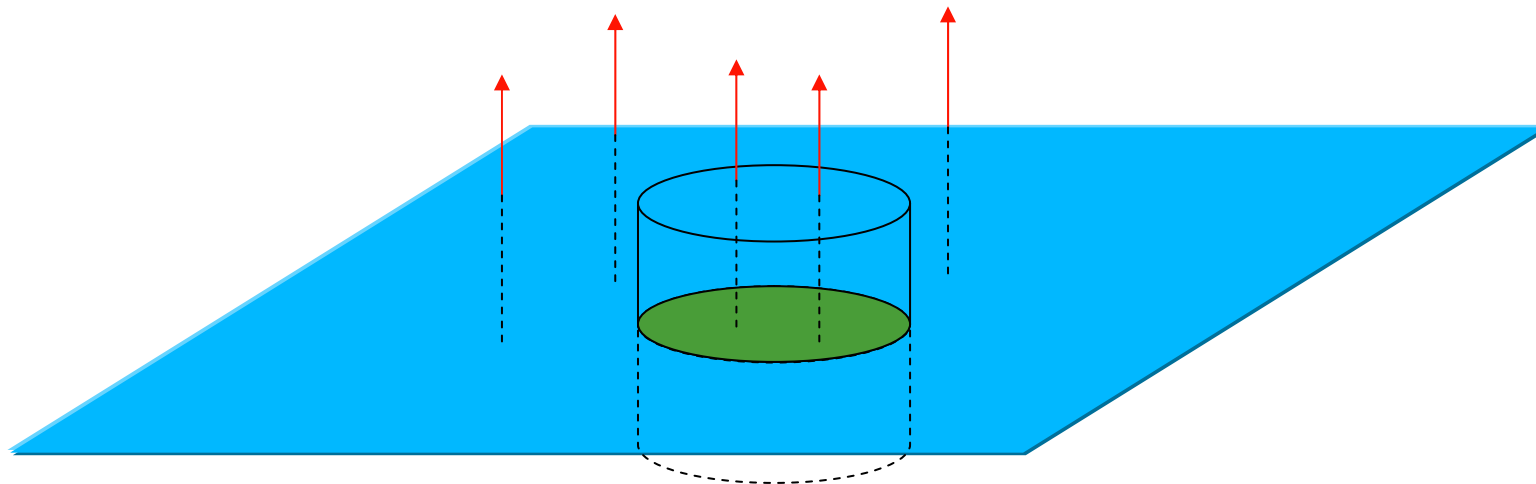
$$E = \frac{1}{4\pi \epsilon_0} \frac{Q_T}{R^3} r$$



$$E 2 \pi r L = \frac{\lambda L}{\epsilon_0}$$

$$E = \frac{1}{2 \pi \epsilon_0} \frac{\lambda}{r}$$

$$\int_{LAT} \mathbf{E} \cdot d\mathbf{A} = E \int_{LAT} dA = E 2 \pi r L = \frac{Q_{int}}{\epsilon_0}$$



$$\oint \vec{E} \cdot d\vec{A} = \frac{Q_{\text{int}}}{\epsilon_0}$$

$$2EA = \sigma A / \epsilon_0$$

$$E = \sigma / 2\epsilon_0$$