



Física IV

05 outubro 2020

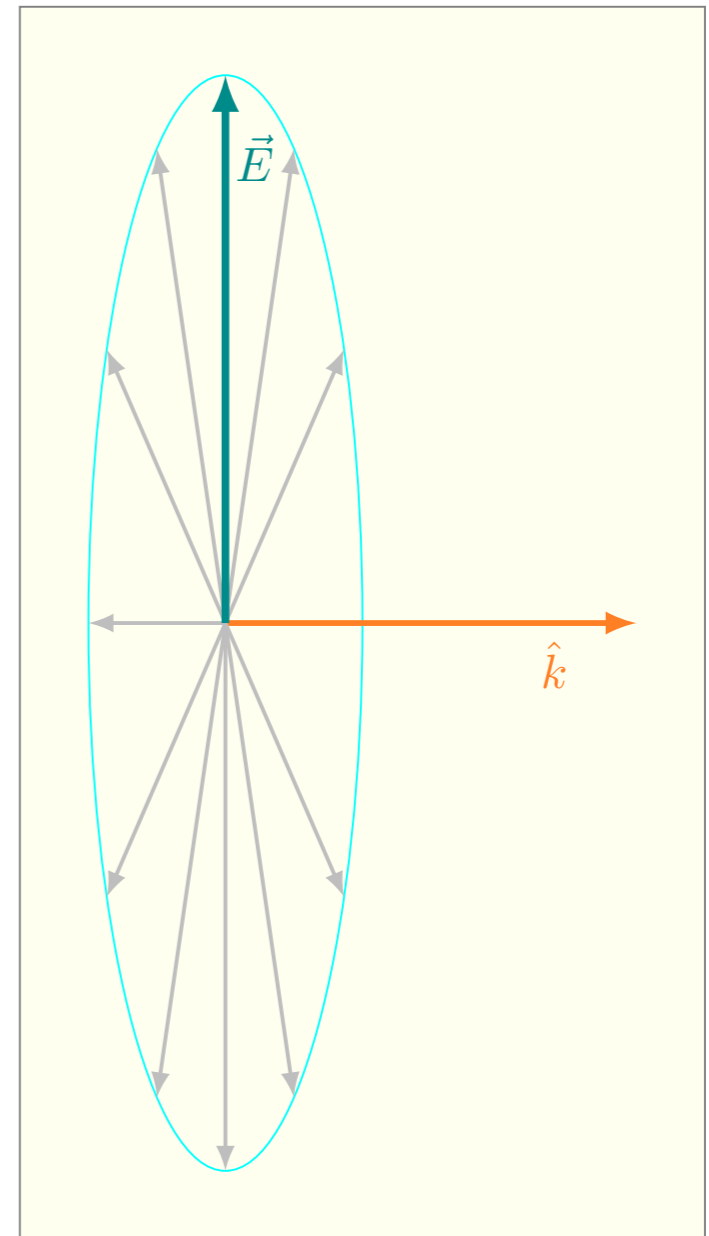
Equações de Maxwell
Espectro eletromagnético

Equações de Maxwell

Radiação monocromática

$$\nabla^2 \vec{E} = \mu_0 \epsilon_0 \frac{\partial^2 \vec{E}}{\partial t^2}$$

$$\vec{E}(\vec{r}, t) = \vec{E}_0 \cos(\vec{k} \cdot \vec{r} - \omega t)$$



Equações de Maxwell

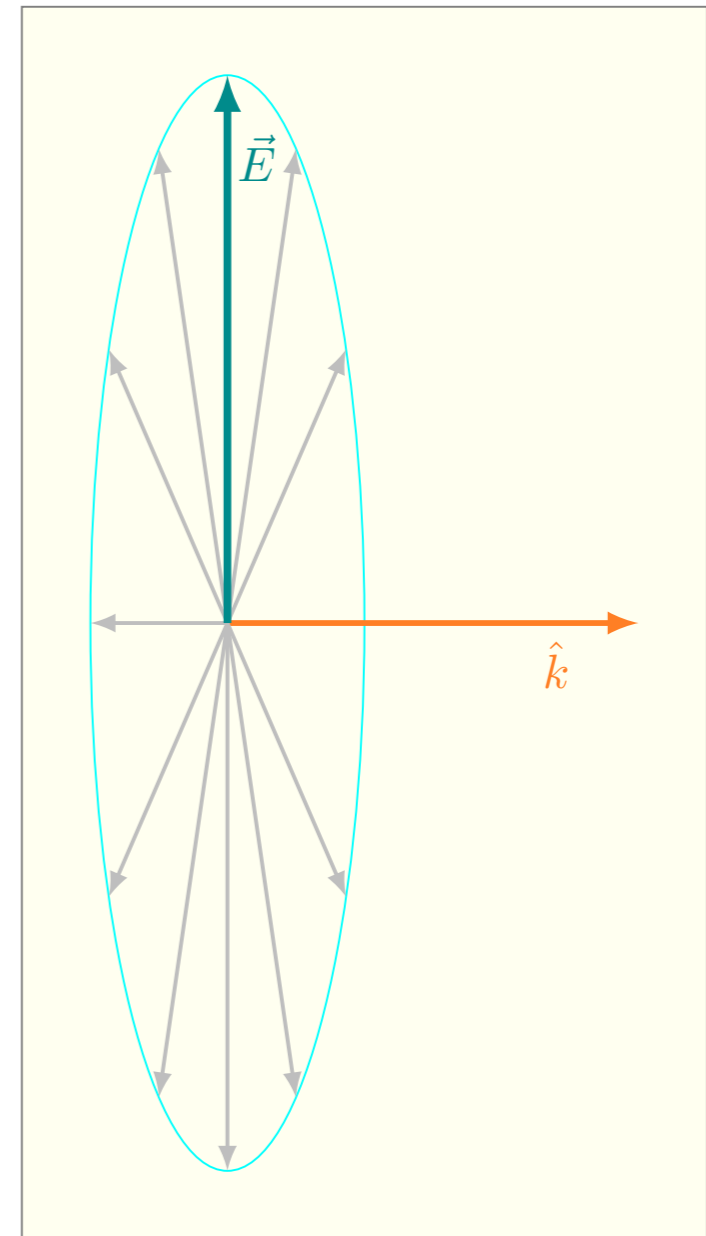
Radiação monocromática

$$\nabla^2 \vec{E} = \mu_0 \epsilon_0 \frac{\partial^2 \vec{E}}{\partial t^2}$$

$$\vec{E}(\vec{r}, t) = \vec{E}_0 \cos(\vec{k} \cdot \vec{r} - \omega t)$$

$$\vec{E}(\vec{r}, t) = \vec{E}_0 \cos\left(k(\hat{k} \cdot \vec{r} - \frac{\omega}{k}t)\right)$$

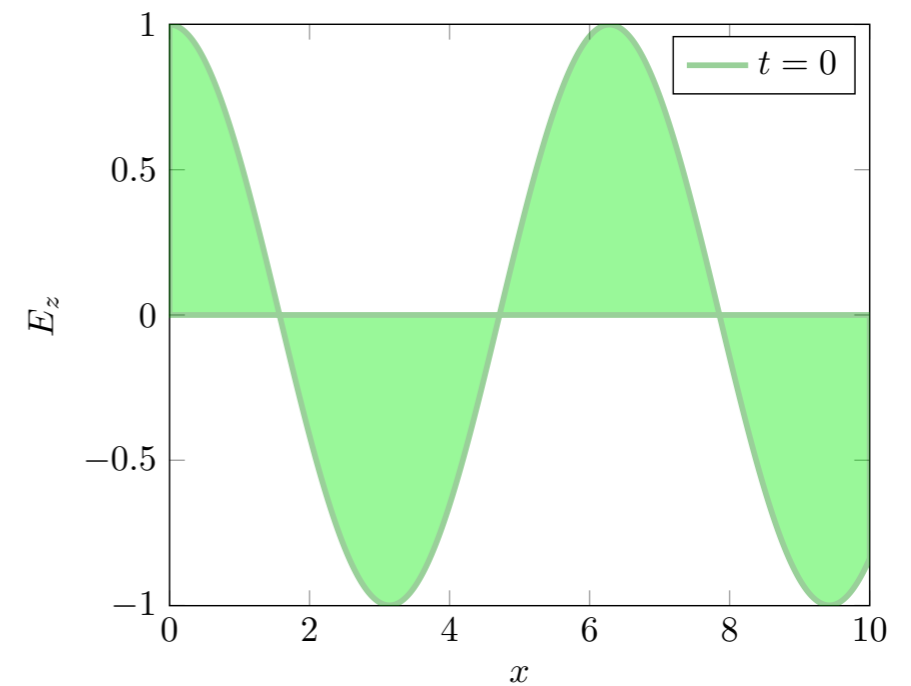
$$\Rightarrow \omega = ck$$



Equações de Maxwell

Radiação monocromática

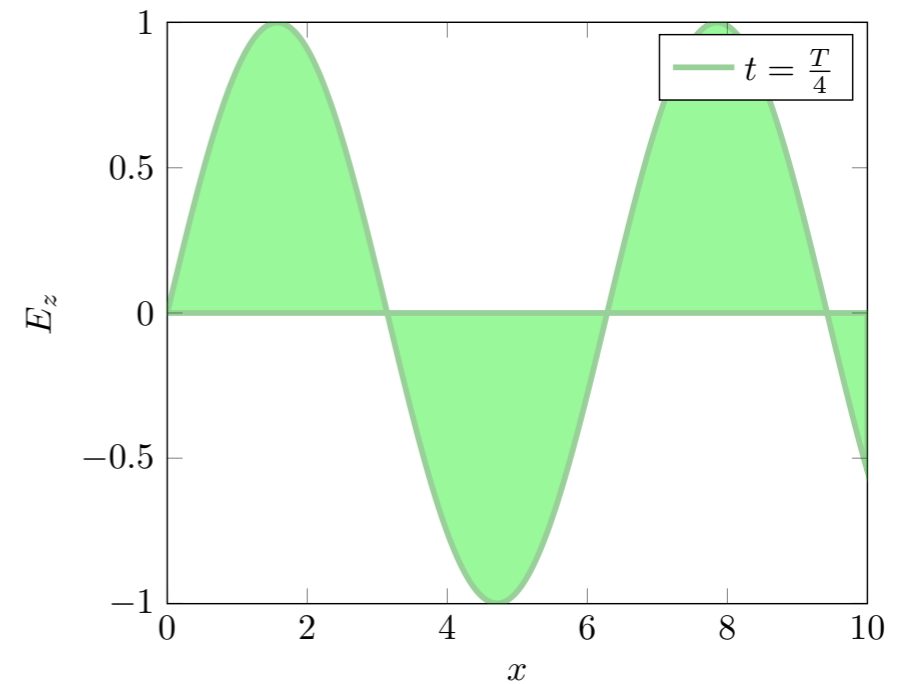
$$\vec{E}(\vec{r}, t) = E_0 \cos(kx - \omega t) \hat{z}$$



Equações de Maxwell

Radiação monocromática

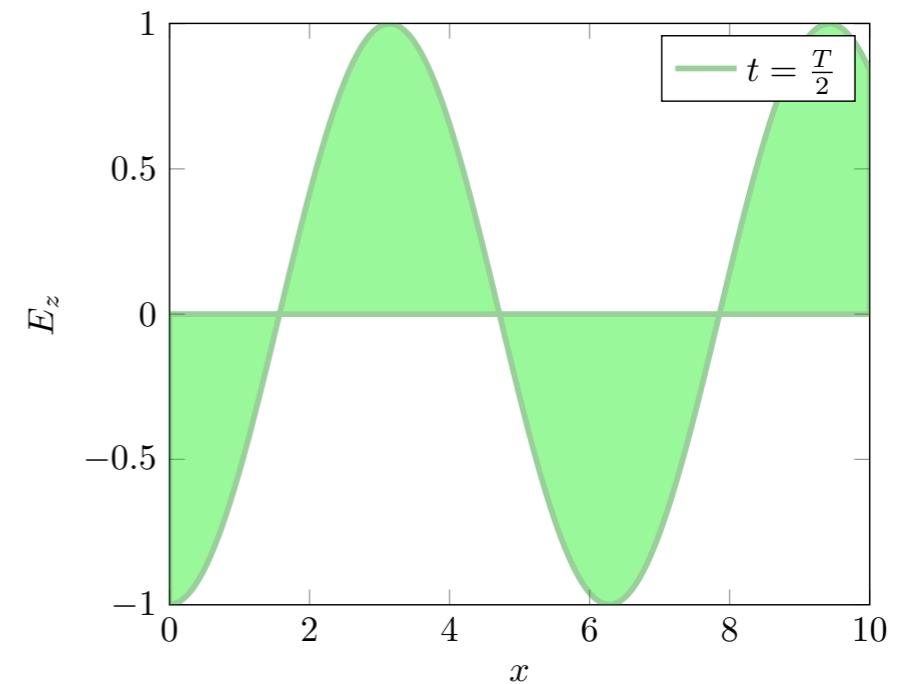
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Equações de Maxwell

Radiação monocromática

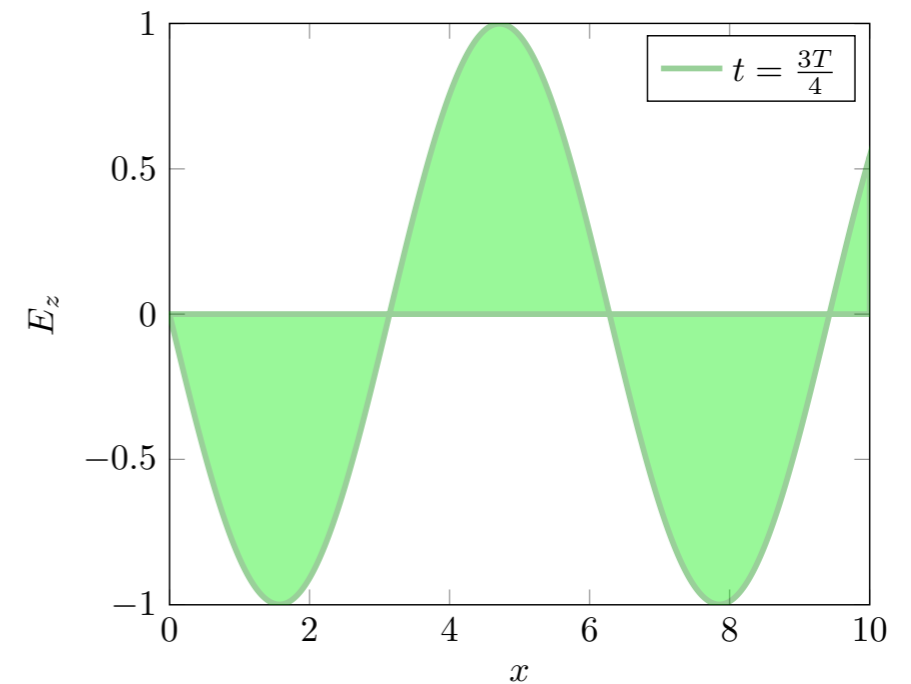
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Equações de Maxwell

Radiação monocromática

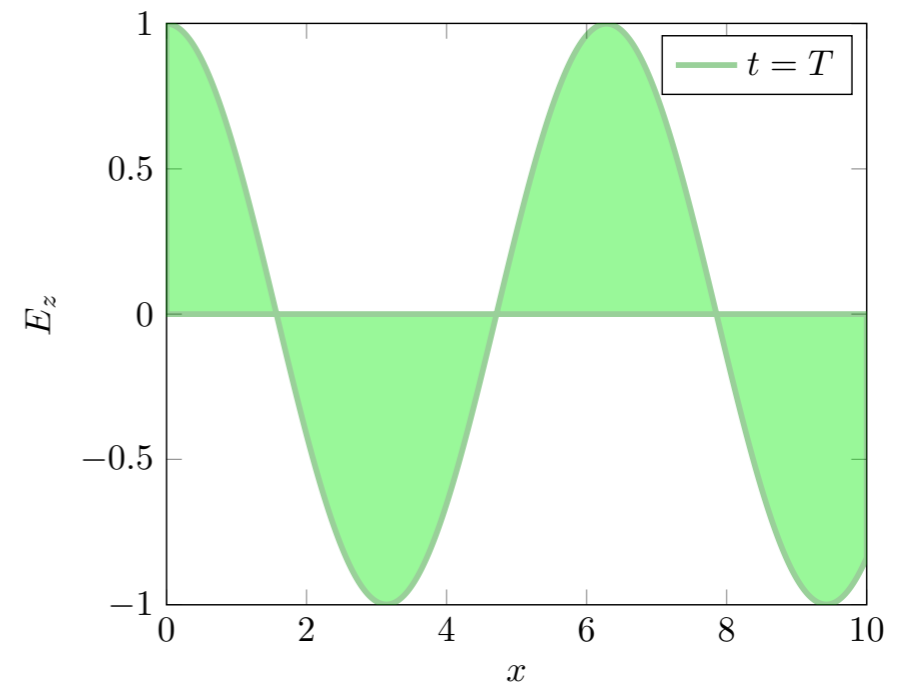
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Equações de Maxwell

Radiação monocromática

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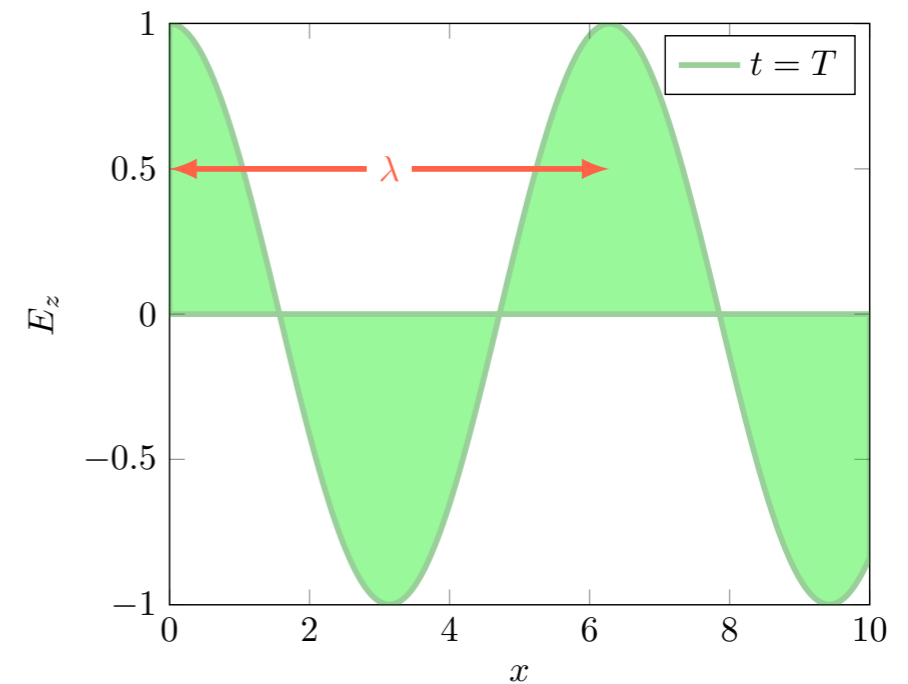


Equações de Maxwell

Radiação monocromática

$$\vec{E}(\vec{r}, t) = E_0 \cos(kx - \omega t) \hat{z}$$

$$\omega = kc$$



Equações de Maxwell

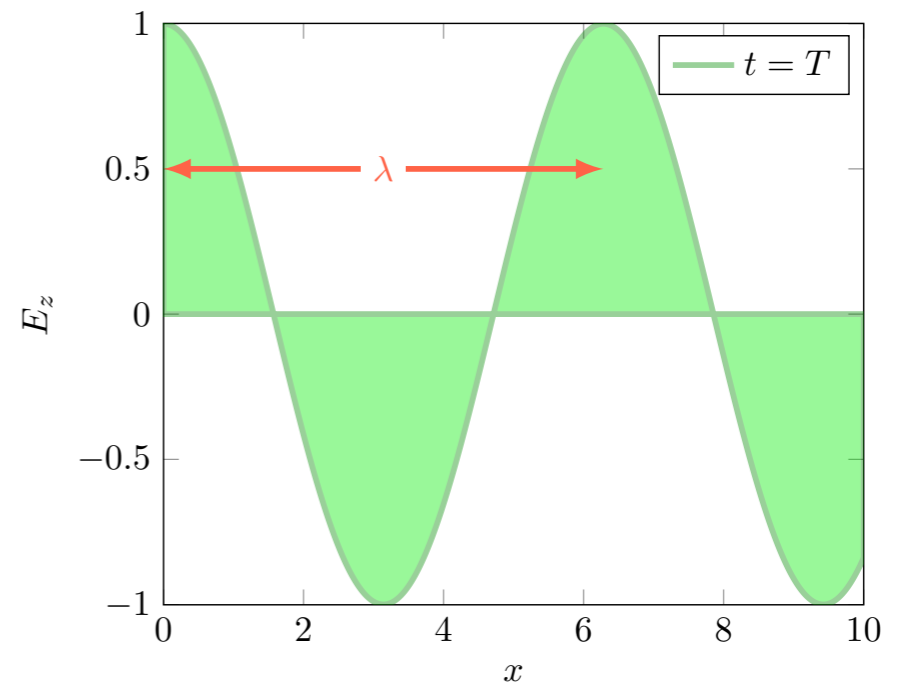
Radiação monocromática

$$\vec{E}(\vec{r}, t) = E_0 \cos(kx - \omega t) \hat{z}$$

$$\omega = kc$$

$$k\lambda = 2\pi$$

$$k = \frac{2\pi}{\lambda}$$



Equações de Maxwell

Radiação monocromática

$$\vec{E}(\vec{r}, t) = E_0 \cos(kx - \omega t) \hat{z}$$

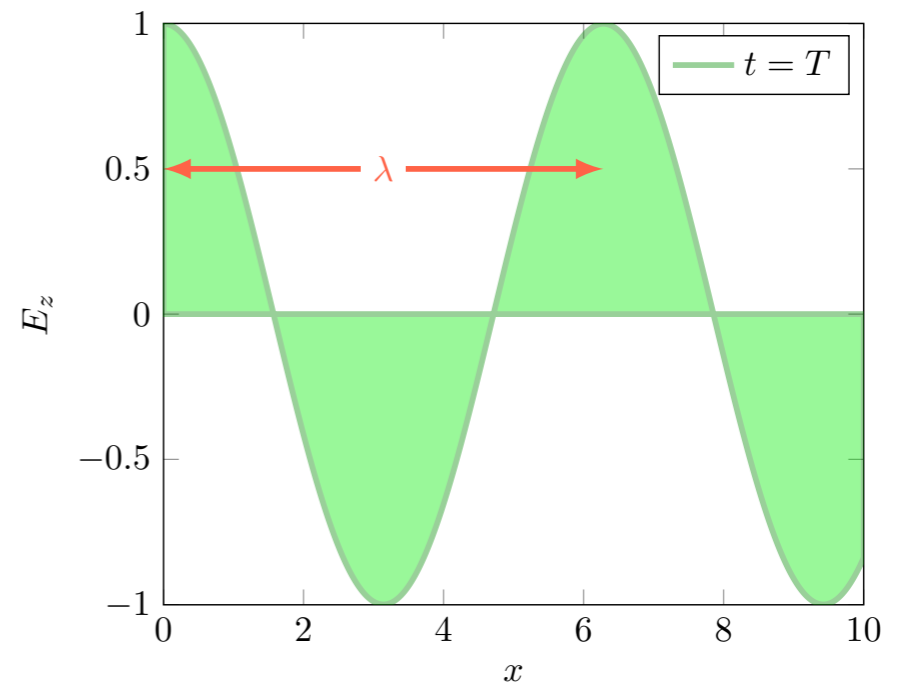
$$\omega = kc$$

$$k\lambda = 2\pi$$

$$\omega T = 2\pi$$

$$k = \frac{2\pi}{\lambda}$$

$$\omega = \frac{2\pi}{T}$$



Equações de Maxwell

Radiação monocromática

$$\vec{E}(\vec{r}, t) = E_0 \cos(kx - \omega t) \hat{z}$$

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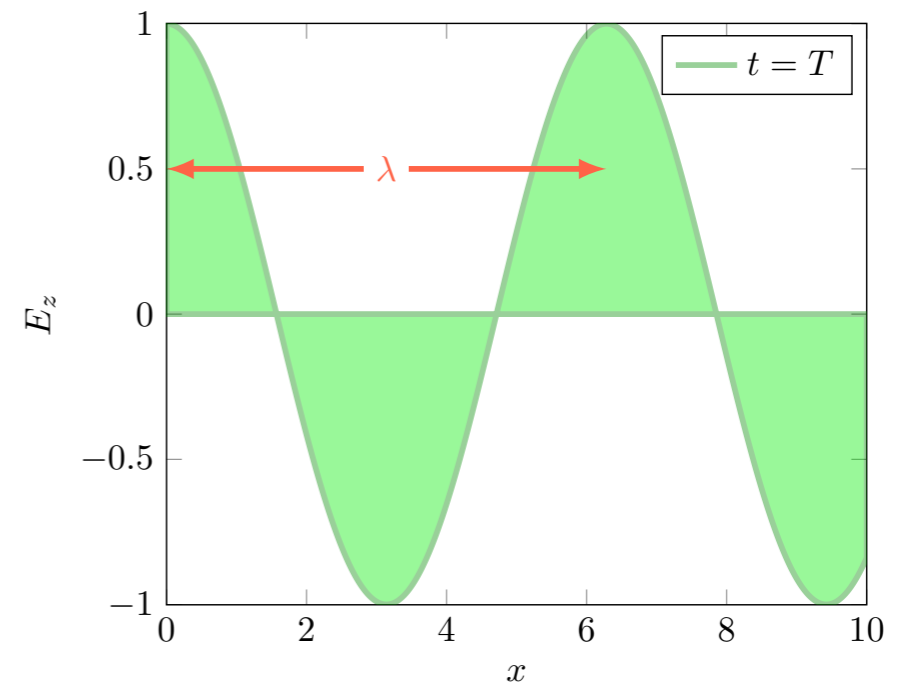
$$\lambda = cT$$

$$k\lambda = 2\pi$$

$$k = \frac{2\pi}{\lambda}$$

$$\omega T = 2\pi$$

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Equações de Maxwell

Radiação monocromática

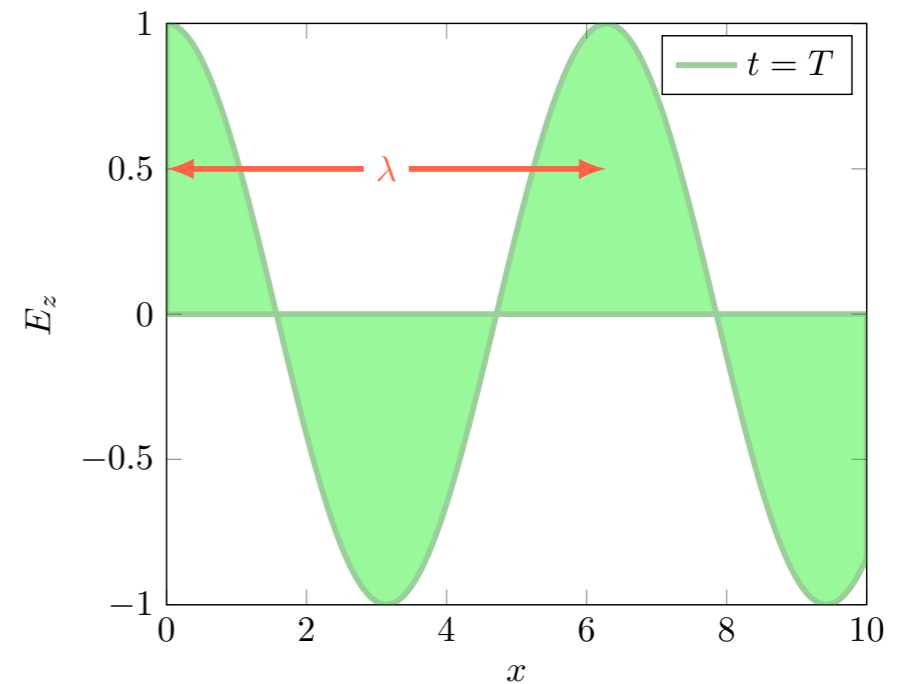
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Equações de Maxwell

Radiação monocromática

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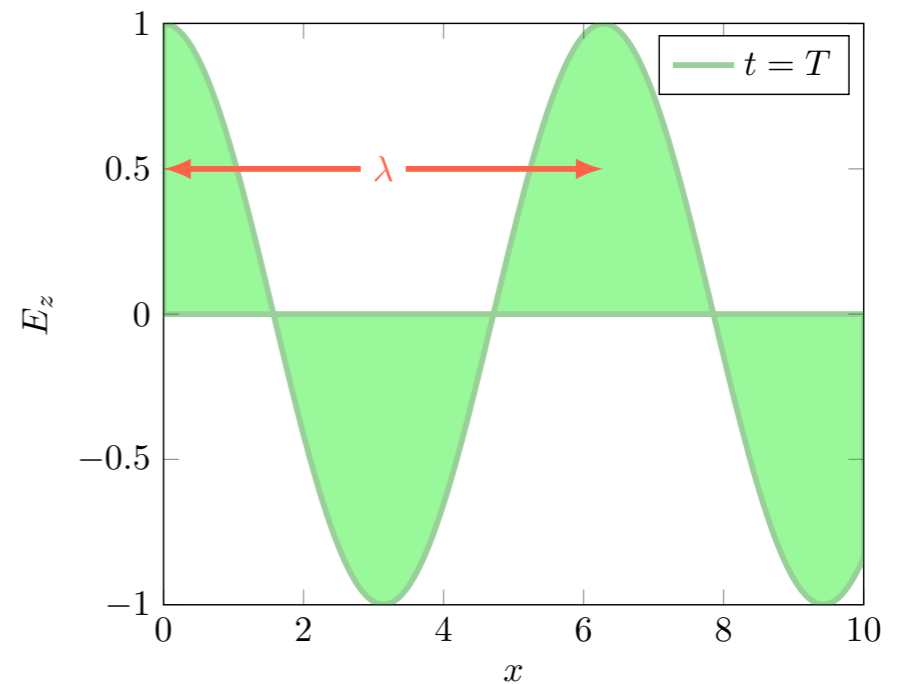
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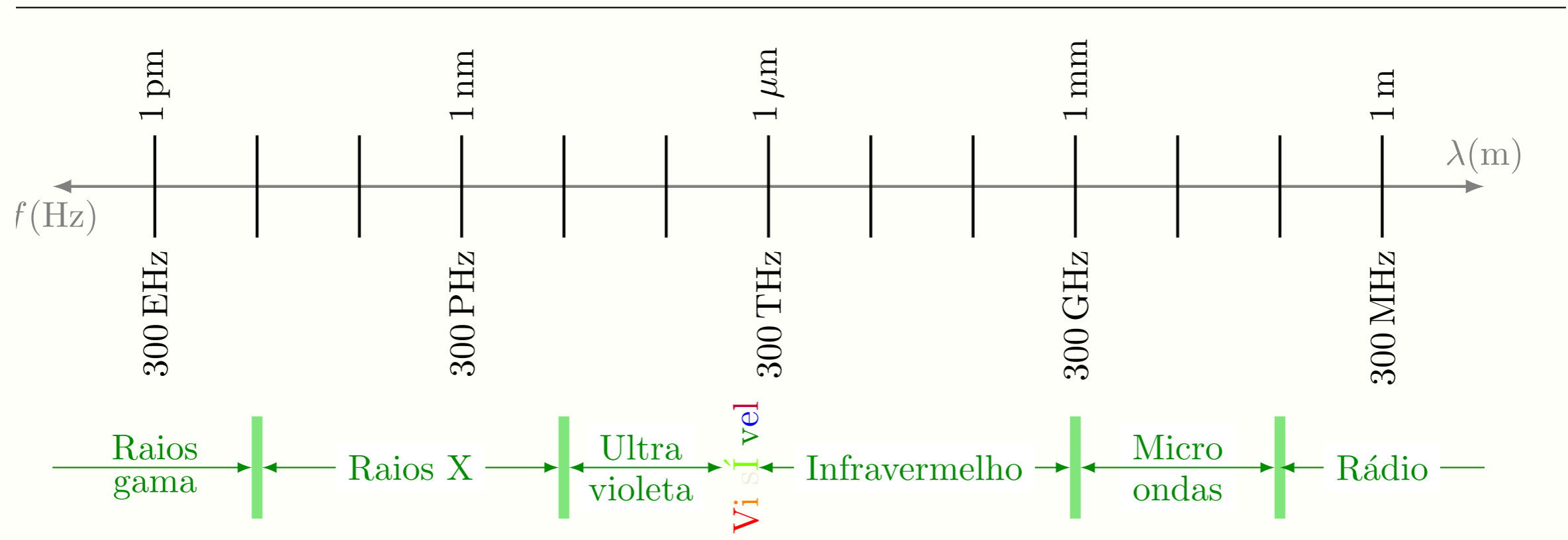
$$f = \frac{1}{T} = \frac{\omega}{2\pi}$$



Equações de Maxwell

Espaço livre

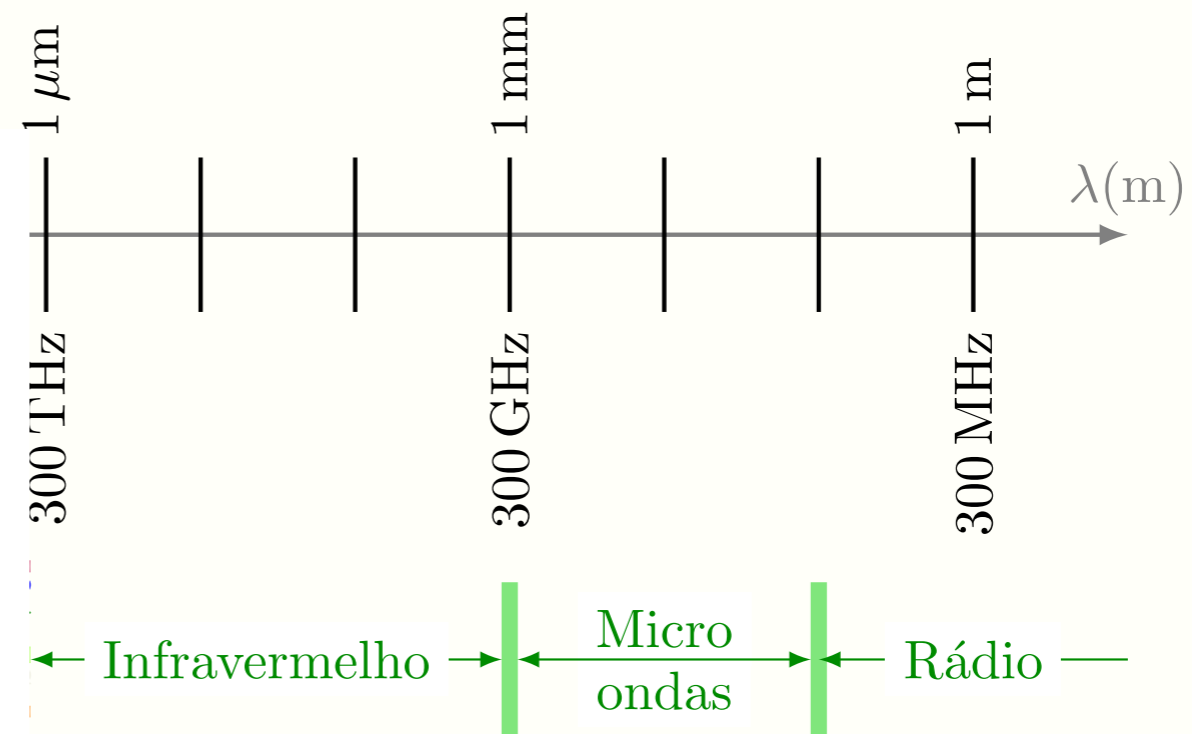
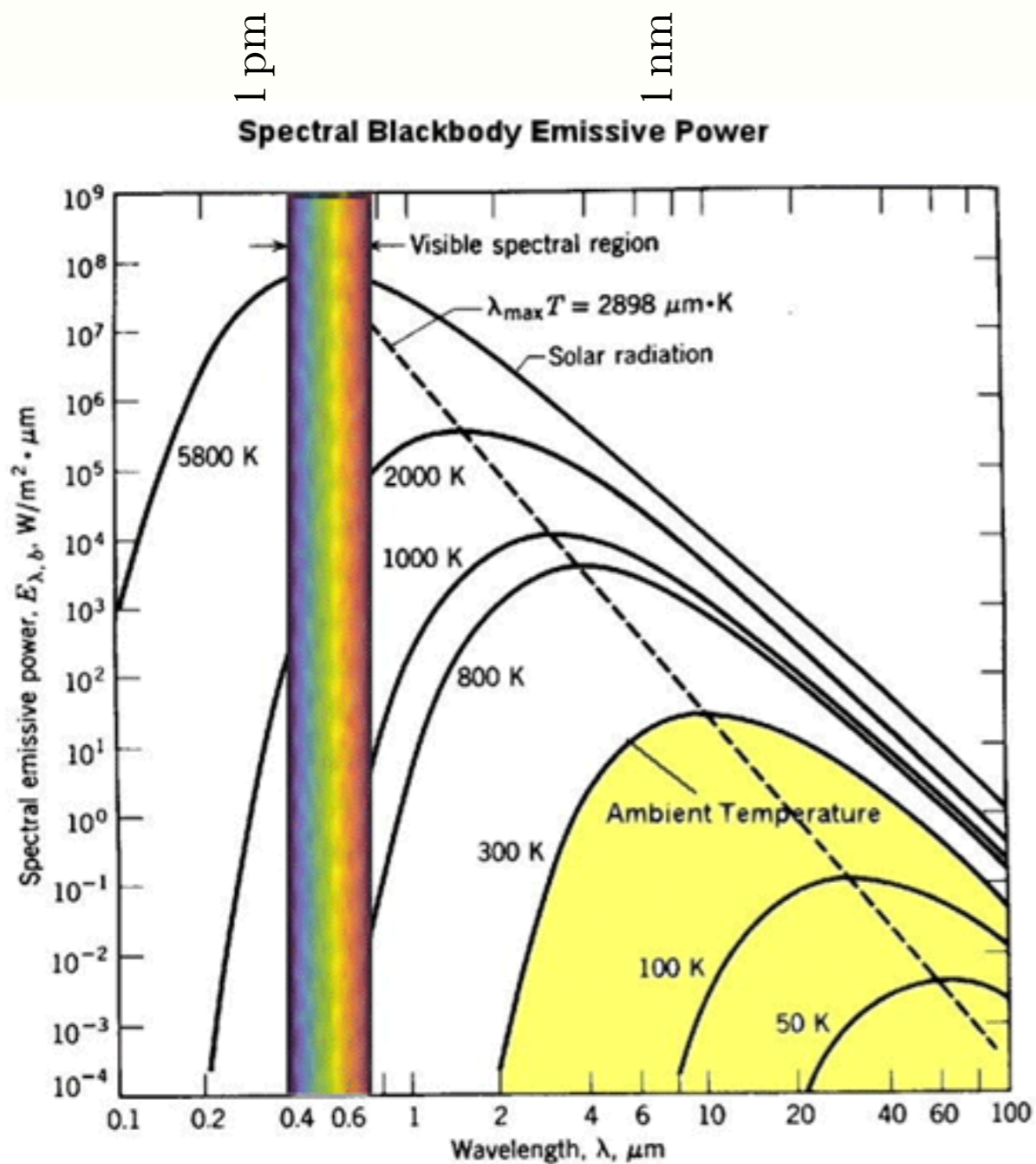
Espectro eletromagnético



Equações de Maxwell

Espaço livre

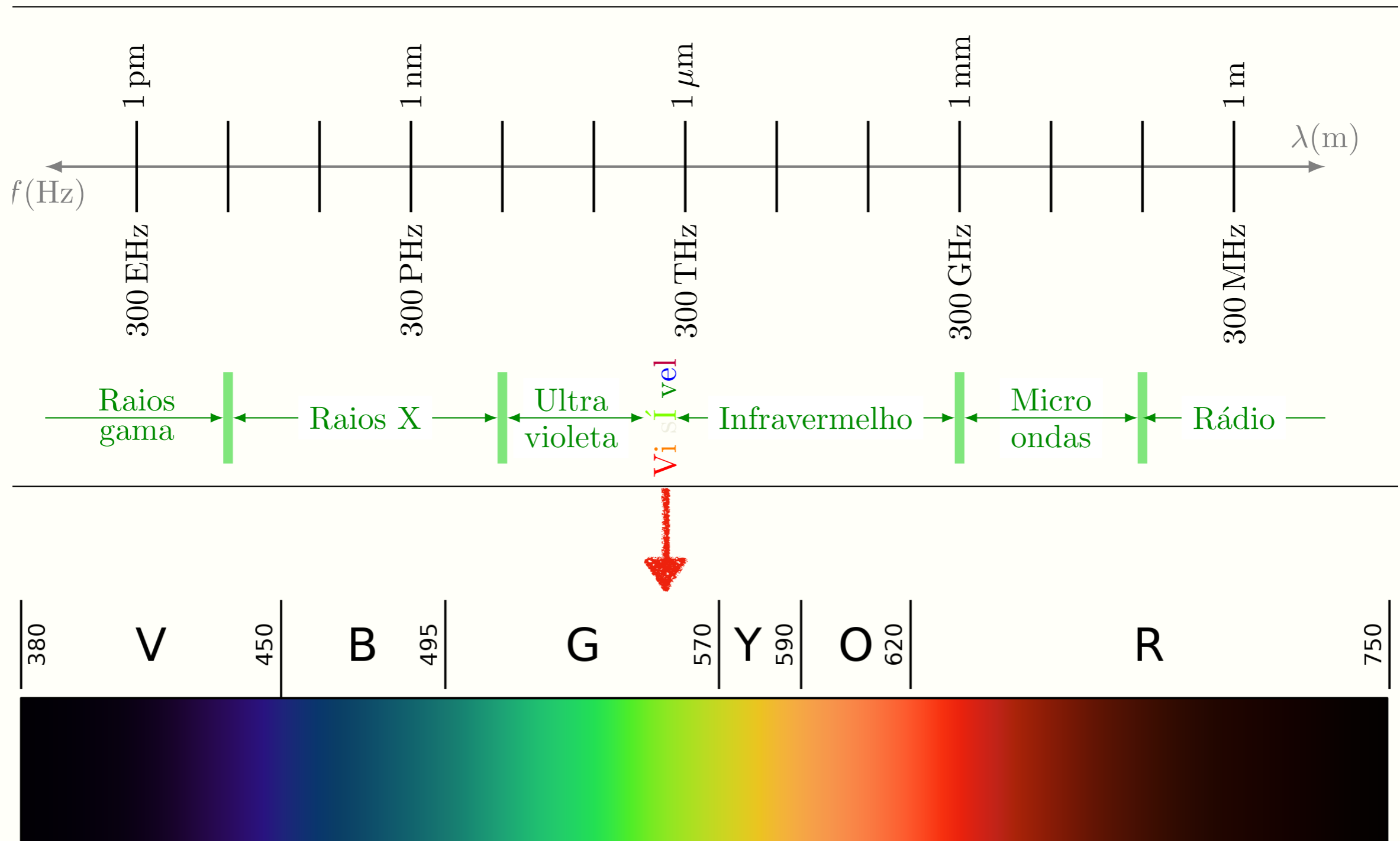
Espectro eletromagnético



Equações de Maxwell

Espaço livre

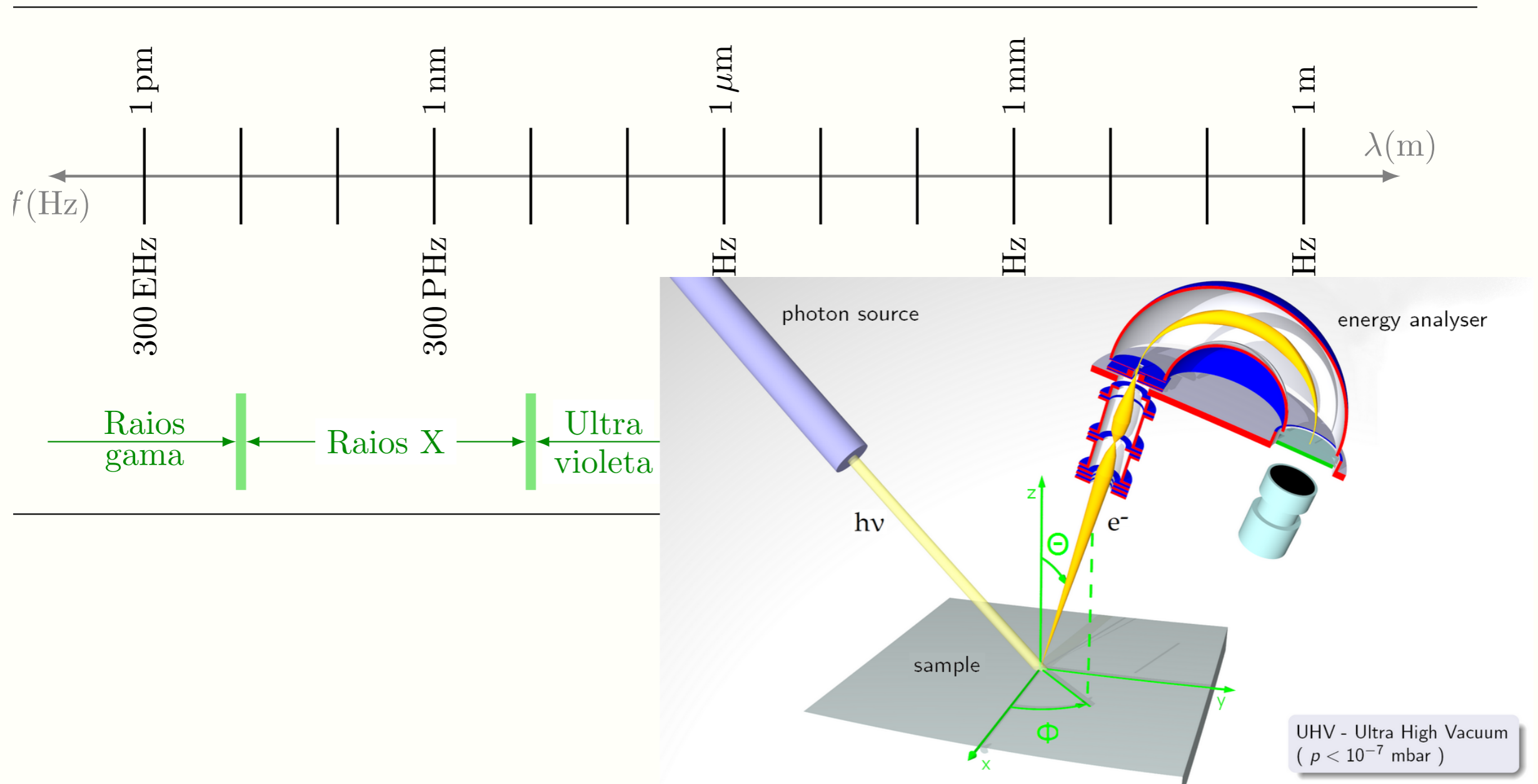
Espectro eletromagnético



Equações de Maxwell

Espaço livre

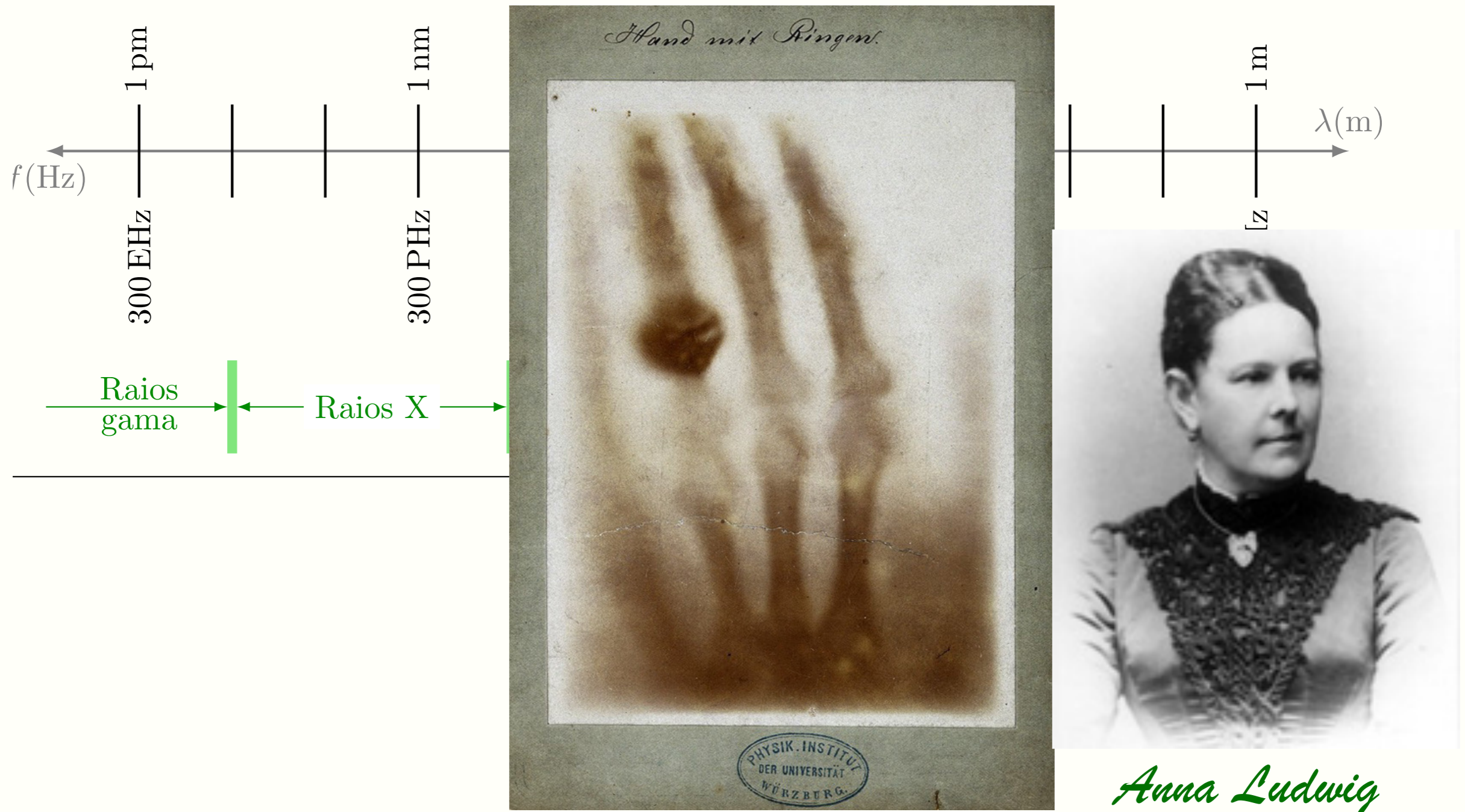
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Equações de Maxwell

Espaço livre

Espectro eletromagnético

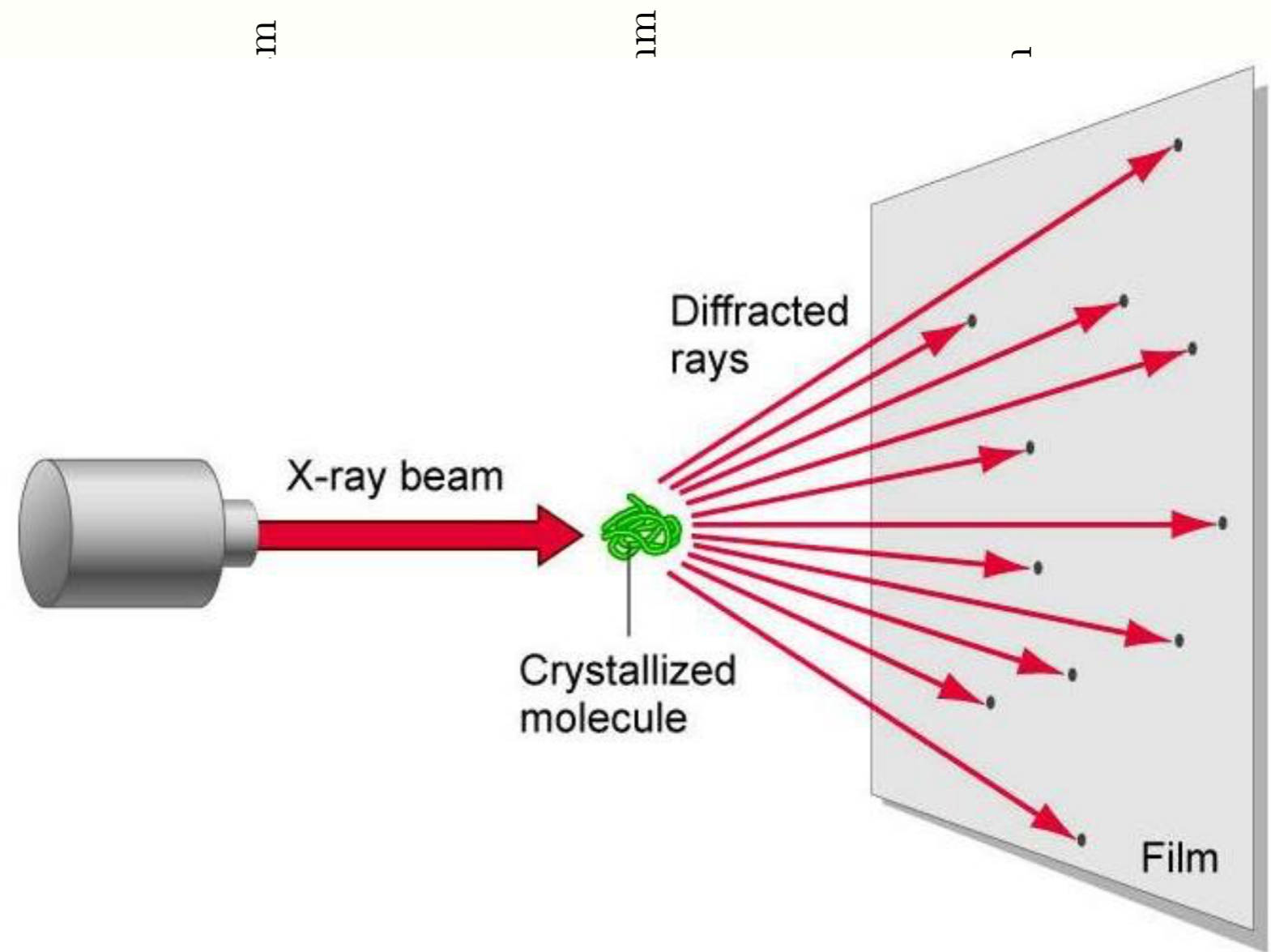
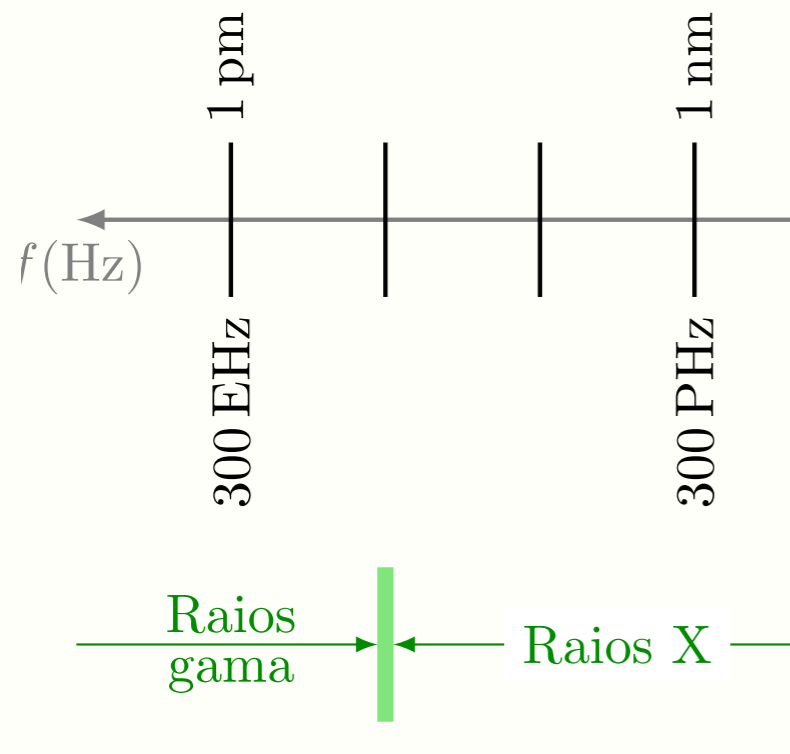


Anna Ludwig

Equações de Maxwell

Espaço livre

Espectro eletromagnético



Equações de Maxwell

Espaço livre

Espectro eletromagnético

