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Momentum

$$\vec{F} = \frac{d\vec{p}_{\text{mech}}}{dt}$$

$$\frac{d\vec{p}_{\text{mech}}}{dt} = -\epsilon_0 \mu_0 \frac{d}{dt} \int \vec{S} d^3r$$

$$+ \int \vec{T} \cdot d\vec{S}$$

$$\vec{p}_{\text{em}} = \mu_0 \epsilon_0 \int \vec{S} d^3r$$

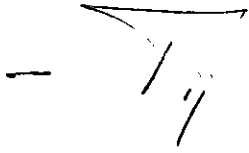
$\mu_0 \epsilon_0 \vec{S}$ - momentum per volume

$$\vec{P}_{\text{em}} = \mu_0 \epsilon_0 \vec{S} = \frac{1}{c^2} \vec{S}$$

$$\frac{d}{dt} \left(\vec{P}_{\text{mech}} + \vec{P}_{\text{em}} \right) = \nabla \cdot \vec{T}$$

\vec{T} - momentum flux density

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momentum in the i direction
crossing a surface oriented in j
direction per area per second