I.- CAMPOS EN EL VACÍO

$\mathbf{F}_E(\mathbf{r},t) = q\,\mathbf{E}(\mathbf{r},t)$	$\mathbf{F}_M(\mathbf{r},t) = \mu_0\, q\, \mathbf{v}(\mathbf{r},t)\times\mathbf{H}(\mathbf{r},t)$	$\varepsilon_0 = 8{,}854.10^{-12}$ F/m	$\mu_0 = 4\pi.10^{-7}$ H/m

$\oint_{S=\partial V} \varepsilon_0\, \mathbf{E}(\mathbf{r},t)\cdot\mathbf{da} = Q_V(t)$	$\oint_{S=\partial V} \mu_0\, \mathbf{H}(\mathbf{r},t)\cdot\mathbf{da} = 0$
$\oint_{L=\partial S} \mathbf{E}(\mathbf{r},t)\cdot\mathbf{dl} = -\frac{d}{dt}\int_S \mu_0\,\mathbf{H}(\mathbf{r},t)\cdot\mathbf{da}$	$\oint_{L=\partial S} \mathbf{H}(\mathbf{r},t)\cdot\mathbf{dl} = I_S(t) + \frac{d}{dt}\int_S \varepsilon_0\,\mathbf{E}(\mathbf{r},t)\cdot\mathbf{da}$
$Q_V(t) = \int_{V'} \rho_V(\mathbf{r},t)\, dV' + \int_{S'} \eta(\mathbf{r},t)\, da' + \int_{L'} \lambda(\mathbf{r},t)\, dl' + \sum_{\mathbf{r}_i\in V} q_i(t)$	$I_S(t) = \int_{S'} \mathbf{J}(\mathbf{r},t)\cdot\mathbf{da'} + \int_{L_n} \mathbf{K}(\mathbf{r},t)\cdot\mathbf{1n}\, dl_n + \sum_{L_i\cap S\neq vacío} I_i(t)$

$\nabla\cdot\varepsilon_0\,\mathbf{E}(\mathbf{r},t) = \rho_V(\mathbf{r},t)$	$\mathbf{1n}\cdot\left[\varepsilon_0\,\mathbf{E}(\mathbf{r},t)\big\vert_{S^+} - \varepsilon_0\,\mathbf{E}(\mathbf{r},t)\big\vert_{S^-}\right] = \eta(\mathbf{r},t)$
$\nabla\cdot\mu_0\,\mathbf{H}(\mathbf{r},t) = 0$	$\mathbf{1n}\cdot\left[\mu_0\,\mathbf{H}(\mathbf{r},t)\big\vert_{S^+} - \mu_0\,\mathbf{H}(\mathbf{r},t)\big\vert_{S^-}\right] = 0$
$\nabla\times\mathbf{E}(\mathbf{r},t) = -\frac{\partial(\mu_0\,\mathbf{H}(\mathbf{r},t))}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{E}(\mathbf{r},t)\big\vert_{S^+} - \mathbf{E}(\mathbf{r},t)\big\vert_{S^-}\right] = \mathbf{0}$
$\nabla\times\mathbf{H}(\mathbf{r},t) = \mathbf{J}(\mathbf{r},t) + \frac{\partial(\varepsilon_0\,\mathbf{E}(\mathbf{r},t))}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{H}(\mathbf{r},t)\big\vert_{S^+} - \mathbf{H}(\mathbf{r},t)\big\vert_{S^-}\right] = \mathbf{K}(\mathbf{r},t)$
$\nabla\cdot\mathbf{J}(\mathbf{r},t) = -\frac{\partial\,\rho_V(\mathbf{r},t)}{\partial t}$	$\mathbf{1n}\cdot\left[\mathbf{J}(\mathbf{r},t)\big\vert_{S^+} - \mathbf{J}(\mathbf{r},t)\big\vert_{S^-}\right] = -\nabla_S\cdot\mathbf{K}(\mathbf{r},t) - \frac{\partial\,\eta(\mathbf{r},t)}{\partial t}$

II.- CAMPOS EN MATERIALES

1. Materiales lineales e isotrópicos

$\mathbf{J}_c(\mathbf{r},t) = \sigma(\mathbf{r})\,\mathbf{E}(\mathbf{r},t)$	$\mathbf{K}_c(\mathbf{r},t) = \sigma_S(\mathbf{r})\,\mathbf{E}(\mathbf{r},t)$	$\mathbf{D}(\mathbf{r},t) = \varepsilon(\mathbf{r})\,\mathbf{E}(\mathbf{r},t)$	$\mathbf{B}(\mathbf{r},t) = \mu(\mathbf{r})\,\mathbf{H}(\mathbf{r},t)$

$\nabla\cdot\varepsilon(\mathbf{r})\mathbf{E} = \rho_V$	$\mathbf{1n}\cdot\left[(\varepsilon(\mathbf{r})\mathbf{E})\big\vert_{S^+} - (\varepsilon(\mathbf{r})\mathbf{E})\big\vert_{S^-}\right] = \eta$
$\nabla\cdot\mu(\mathbf{r})\mathbf{H} = 0$	$\mathbf{1n}\cdot\left[(\mu(\mathbf{r})\mathbf{H})\big\vert_{S^+} - (\mu(\mathbf{r})\mathbf{H})\big\vert_{S^-}\right] = 0$
$\nabla\times\mathbf{E} = -\frac{\partial(\mu(\mathbf{r})\mathbf{H})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{E}\big\vert_{S^+} - \mathbf{E}\big\vert_{S^-}\right] = \mathbf{0}$
$\nabla\times\mathbf{H} = \mathbf{J}_{tot} + \frac{\partial(\varepsilon(\mathbf{r})\mathbf{E})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{H}\big\vert_{S^+} - \mathbf{H}\big\vert_{S^-}\right] = \mathbf{K}_{tot}$
$\nabla\cdot\mathbf{J}_{tot} = -\frac{\partial\,\rho_V}{\partial t}$	$\mathbf{1n}\cdot\left[\mathbf{J}_{tot}\big\vert_{S^+} - \mathbf{J}_{tot}\big\vert_{S^-}\right] = -\nabla_S\cdot\mathbf{K}_{tot} - \frac{\partial\eta}{\partial t}$

2. Polarización

$\mathbf{D} = \varepsilon_0\,\mathbf{E} + \mathbf{P}$	$\rho_P = -\nabla\cdot\mathbf{P}$	$\eta_P\big\vert_S = -\mathbf{1n}\cdot\left[\mathbf{P}\big\vert_{S^+} - \mathbf{P}\big\vert_{S^-}\right]$	$\mathbf{J}_P = \frac{\partial\,\mathbf{P}}{\partial t}$

Polarización (continuación)

$\nabla\cdot\varepsilon_0\mathbf{E}=\rho_V+\rho_P$	$\mathbf{1n}\cdot\left[\varepsilon_0\mathbf{E}\big\vert_{S^+}-\varepsilon_0\mathbf{E}\big\vert_{S^-}\right]=\eta+\eta_P$
$\nabla\cdot\mathbf{B}=0$	$\mathbf{1n}\cdot\left[\mathbf{B}\big\vert_{S^+}-\mathbf{B}\big\vert_{S^-}\right]=0$
$\nabla\times\mathbf{E}=-\dfrac{\partial(\mu_0\,\mathbf{H})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{E}\big\vert_{S^+}-\mathbf{E}\big\vert_{S^-}\right]=\mathbf{0}$
$\nabla\times\mathbf{H}=\mathbf{J}+\mathbf{J}_P+\dfrac{\partial(\varepsilon_0\mathbf{E})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{H}\big\vert_{S^+}-\mathbf{H}\big\vert_{S^-}\right]=\mathbf{K}$
$\nabla\cdot\mathbf{J}_P=-\dfrac{\partial\rho_P}{\partial t}$	$\mathbf{1n}\cdot\left[\mathbf{J}_P\big\vert_{S^+}-\mathbf{J}_P\big\vert_{S^-}\right]=-\left.\dfrac{\partial\eta_P}{\partial t}\right\vert_S$

3. Modelo amperiano

$\mathbf{B}=\mu_0\,\mathbf{H}a$	$\mathbf{J}a=\nabla\times\mathbf{M}$	$\mathbf{K}a=\mathbf{1n}\times\left[\mathbf{M}\big\vert_{S^+}-\mathbf{M}\big\vert_{S^-}\right]$

$\nabla\cdot\mathbf{D}=\rho_V$	$\mathbf{1n}\cdot\left[\mathbf{D}\big\vert_{S^+}-\mathbf{D}\big\vert_{S^-}\right]=\eta$
$\nabla\cdot\mathbf{B}=0$	$\mathbf{1n}\cdot\left[\mathbf{B}\big\vert_{S^+}-\mathbf{B}\big\vert_{S^-}\right]=0$
$\nabla\times\mathbf{E}=-\mu_0\dfrac{\partial\,\mathbf{H}a}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{E}\big\vert_{S^+}-\mathbf{E}\big\vert_{S^-}\right]=\mathbf{0}$
$\nabla\times\mathbf{H}a=\mathbf{J}+\mathbf{J}a+\dfrac{\partial(\varepsilon_0\mathbf{E})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{H}a\big\vert_{S^+}-\mathbf{H}a\big\vert_{S^-}\right]=\mathbf{K}+\mathbf{K}a$

4. Modelo de corrientes magnéticas

$\mathbf{B}=\mu_0\left(\mathbf{H}+\mathbf{M}\right)$	$\rho_m=-\nabla\cdot\mu_0\,\mathbf{M}$	$\eta_m\big\vert_S=-\mathbf{1n}\cdot\left[\mu_0\,\mathbf{M}\big\vert_{S^+}-\mu_0\,\mathbf{M}\big\vert_{S^-}\right]$	$\mathbf{J}_m=\dfrac{\partial\left(\mu_0\,\mathbf{M}\right)}{\partial t}$

$\nabla\cdot\mathbf{D}=\rho_V$	$\mathbf{1n}\cdot\left[\mathbf{D}\big\vert_{S^+}-\mathbf{D}\big\vert_{S^-}\right]=\eta$
$\nabla\cdot\mu_0\,\mathbf{H}=\rho_m$	$\mathbf{1n}\cdot\left[\mu_0\,\mathbf{H}\big\vert_{S^+}-\mu_0\,\mathbf{H}\big\vert_{S^-}\right]=\eta_m$
$\nabla\times\mathbf{E}=-\mathbf{J}_m-\dfrac{\partial(\mu_0\,\mathbf{H})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{E}\big\vert_{S^+}-\mathbf{E}\big\vert_{S^-}\right]=\mathbf{0}$
$\nabla\times\mathbf{H}=\mathbf{J}+\dfrac{\partial(\varepsilon_0\,\mathbf{E})}{\partial t}$	$\mathbf{1n}\times\left[\mathbf{H}\big\vert_{S^+}-\mathbf{H}\big\vert_{S^-}\right]=\mathbf{K}$
$\nabla\cdot\mathbf{J}_m=-\dfrac{\partial\rho_m}{\partial t}$	$\mathbf{1n}\cdot\left[\mathbf{J}_m\big\vert_{S^+}-\mathbf{J}_m\big\vert_{S^-}\right]=-\dfrac{\partial\eta_m}{\partial t}$

5. Parámetros circuitales

$\Phi(P_2)-\Phi(P_1)=-\displaystyle\int_{P_1}^{P_2}\mathbf{E}\cdot\mathbf{dl}$	$C=\dfrac{Q^+}{V}=\dfrac{\oint_S\varepsilon\,\mathbf{E}\cdot\mathbf{da}}{V}$	$R=\dfrac{V}{I}=\dfrac{V}{\int_S\sigma\,\mathbf{E}\cdot\mathbf{da}}$	$L=\dfrac{\Psi_m}{I}=\dfrac{\int_S\mu\,\mathbf{H}\cdot\mathbf{da}}{I}$