

1) Notes 94 (1): SCR is a Bedn Motor

In this device an electric pulse is induced in the generator. This electric pulse is produced by a pulse of electrons. rate of change of a magnetic field. The electric field pulse produces a pulse of electrons in a battery. It is assumed that the pulse of electrons to the battery is controlled by the ECE Coulomb law.

$$\underline{\nabla} \cdot \underline{E} = c \mu_0 \underline{J}^0 \quad - (1)$$

where:

$$\underline{E} = -\frac{\partial A}{\partial t} - c \underline{\nabla} \phi - c \omega^0 \underline{A} + c \phi \underline{\omega} \quad - (2)$$

So we obtain:

$$\underline{\nabla} \cdot \underline{\nabla} \phi + \frac{1}{c} \frac{\partial}{\partial t} (\underline{\nabla} \cdot \underline{A}) + \underline{\nabla} \cdot (\omega^0 \underline{A}) - \underline{\nabla} \cdot (\phi \underline{\omega}) = -\mu_0 \underline{J}^0 \quad - (3)$$

It is possible to proceed in two ways, each giving a resonance equation.

1) If it is assumed that the origin of \underline{E} is purely due to ϕ , we obtain the basic equation of papers 63 and 92.

2) If it is assumed that the origin of \underline{E} is purely magnetic, we obtain ($\phi = 0$):

$$\frac{1}{c} \frac{\partial}{\partial t} (\underline{\nabla} \cdot \underline{A}) + \underline{\nabla} \cdot (\omega^\circ \underline{A}) = -\mu_0 \underline{J} \quad \text{--- (4)}$$

i.e. $\underline{\nabla} \cdot \left(\frac{1}{c} \frac{\partial \underline{A}}{\partial t} + \omega^\circ \underline{A} \right) = -\mu_0 \underline{J}^\circ$

or: $\frac{1}{c} \frac{\partial \underline{A}}{\partial t} + \omega^\circ \underline{A} = -\mu_0 \int \underline{J}^\circ d\underline{r} \quad \text{--- (5)}$

Thus we obtain:

$$\boxed{\frac{1}{c} \frac{\partial^2 \underline{A}}{\partial t^2} + \omega^\circ \frac{\partial \underline{A}}{\partial t} + \left(\frac{\partial \omega^\circ}{\partial t} \right) \underline{A} = -\mu_0 \frac{\partial}{\partial t} \int \underline{J}^\circ d\underline{r}} \quad \text{--- (6)}$$

This is an undamped resonator.