Formeln S56 S60

The provided context does not include pages 56-60, and thus I cannot extract any formulas from those pages. The formulas provided in the text you shared are as follows:

Stokes' Theorem for Circulation

$$\Upsilon_v = \oint_{\partial G} \langle v, \hat{e} \rangle \, ds = \int_G \langle \mathrm{rot}(v), \hat{n} \rangle \, dA = \int_G \langle 0, \hat{n} \rangle \, dA = \int_G 0 \, dA = 0$$

Maxwell's Equations for Electrodynamics

$$\mathrm{rot}(B) = \epsilon_0 \mu_0 \dot{E} + \mu_0 J$$

$\mathrm{rot}(E) = -\dot{B}$

$$\mathrm{rot}(B) = \epsilon_0 \mu_0 \dot{E} + \mu_0 J$$

In a static situation:

$$\mathrm{rot}(B) = \mu_0 J$$

$\mathrm{rot}(E) = 0$

$$\mathrm{rot}(B) = \mu_0 J$$

Circulation of E-Field and B-Field

$$\Upsilon_B = \oint_{\partial G} \langle B, \hat{e} \rangle \, ds = \int_G \langle \mathrm{rot}(B), \hat{n} \rangle \, dA = \mu_0 \int_G \langle J, \hat{n} \rangle \, dA = \mu_0 \cdot I_{eg}$$

$\Upsilon_E = \oint_{\partial G} \langle E, \hat{e} \rangle \, ds = \int_G \langle \mathrm{rot}(E), \hat{n} \rangle \, dA = \int_G \langle 0, \hat{n} \rangle \, dA = \int_G 0 \, dA = 0$

$$\Upsilon_B = \oint_{\partial G} \langle B, \hat{e} \rangle \, ds = \int_G \langle \mathrm{rot}(B), \hat{n} \rangle \, dA = \mu_0 \int_G \langle J, \hat{n} \rangle \, dA = \mu_0 \cdot I_{eg}$$

Scalar Potential in 3D

$v = \nabla\phi$

Vector Potential in 3D

$v = \mathrm{rot}(A)$

Decomposition Theorem for Vector Fields in 3D

$$q = \nabla\phi$$

$$w = \mathrm{rot}(A)$$

$$v = \mathrm{rot}(A) + \nabla\phi + h$$

$v = w + q + h$

$$q = \nabla\phi$$

$$w = \mathrm{rot}(A)$$

$$v = \mathrm{rot}(A) + \nabla\phi + h$$

Directional Derivative in nD

$\nabla_{\hat{e}} f = \langle \hat{e}, \nabla f \rangle$

These formulas are extracted from the detailed context you provided, covering various mathematical and physical concepts.