In(II) : The Basic Field Equations

HOMOGENEOUS

$$D_\mu \tilde{T}^{\kappa\mu\nu} = -\tilde{R}^{\kappa\ \mu\nu}_{\ \mu}$$

$$D_\mu \tilde{T}^{a\mu\nu} = -\tilde{R}^{a\ \mu\nu}_{\ \mu}$$

$$D_\rho T^a_{\mu\nu} + D_\nu T^a_{\rho\mu} + D_\mu T^a_{\nu\rho} = -\left(R^a_{\rho\mu\nu} + R^a_{\nu\rho\mu} + R^a_{\mu\nu\rho}\right)$$

$$D \wedge T = -q\sqrt{} \wedge R$$

$$D \wedge \tilde{T} = -q\sqrt{} \wedge \tilde{R}$$

$$D_\rho \tilde{T}^a_{\mu\nu} + D_\nu \tilde{T}^a_{\rho\mu} + D_\mu \tilde{T}^a_{\nu\rho} = -\left(\tilde{R}^a_{\rho\mu\nu} + \tilde{R}^a_{\nu\rho\mu} + \tilde{R}^a_{\mu\nu\rho}\right)$$

$$D_\mu T^{a\mu\nu} = -R^{a\ \mu\nu}_{\ \mu}$$

$$D_\mu T^{\kappa\mu\nu} = -R^{\kappa\ \mu\nu}_{\ \mu}$$

INHOMOGENEOUS

2) 100 (11a): Approximations in the Basic Field Equations

$\underline{\nabla} \cdot \underline{B} = 0,$
$\underline{\nabla} \times \underline{E} + \partial \underline{B} / \partial t = \underline{0}$

No interaction between e/m and gravitation

$\partial_\mu \tilde{F}^{\kappa\lambda\mu\nu} \doteq 0$

$\partial_\mu \tilde{F}^{\kappa\lambda\mu\nu} = -A^{(0)} \left(\tilde{R}^{\kappa\lambda}{}_{\mu}{}^{\mu\nu} + \omega^{\kappa\lambda}{}_{\mu b} \tilde{T}^{b\mu\nu} \right)$

$D_\mu \tilde{T}^{\kappa\lambda\mu\nu} = -\tilde{R}^{\kappa\lambda}{}_{\mu}{}^{\mu\nu}$

$D_\mu T^{\kappa\lambda\mu\nu} = -R^{\kappa\lambda}{}_{\mu}{}^{\mu\nu}$

$\partial_\mu F^{\kappa\lambda\mu\nu} = -A^{(0)} \left(R^{\kappa\lambda}{}_{\mu}{}^{\mu\nu} + \omega^{\kappa\lambda}{}_{\mu b} T^{b\mu\nu} \right)$

$\partial_\mu F^{\kappa\lambda\mu\nu} \doteq -A^{(0)} \left(R^{\kappa\lambda}{}_{\mu}{}^{\mu\nu} \right)_{grav}$

$\underline{\nabla} \cdot \underline{E} = 0,$
$\underline{\nabla} \times \underline{B} - \frac{1}{c^2} \frac{\partial \underline{E}}{\partial t} = \underline{0},$
for a Ricci flat vacuum, where $\left(R^{\kappa\lambda}{}_{\mu}{}^{\mu\nu} \right)_{grav} = 0$

$\underline{E} = 0,$
$\underline{B} = 0,$
$T_{\mu\nu} = 0$

In a Ricci flat vacuum
$F_{\kappa\lambda\mu\nu} = 0,$
$J_{\kappa\lambda\mu\nu} = 0$

$G_{\mu\nu} = 0$
$T_{\mu\nu} = 0,$
EH Field Eq.