

# A First Approximate Solution of the Morinaga's

$$\text{Equation : } \frac{\sqrt{A}}{2} \epsilon_{stpq} K_{lm}^{pq} = K_{lmst}.$$

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1. From the parallel displacement, which makes  $ds\psi = 0$  invariant, the differential equation for  $\psi$  in the most general form :

$$\frac{\partial \psi}{\partial x^m} = (-A_m + 2T_m^5 \gamma_5 + R_m I) \psi \quad (1.1)$$

has been obtained by K. Morinaga. Specially when the coefficients of connection in the  $x$ -space, are Riemannian *i. e.*  $\Gamma_{jk}^i = \{\gamma_{jk}^i\}$ , (1.1) can be written in

$$\frac{\partial \psi}{\partial x^m} = (\Gamma_m + T_m^5 \gamma_5 - L_m I) \psi, \quad (1.2)$$

where  $\Gamma_m$  is determined uniquely from the equation :

$$\frac{\partial \gamma_i}{\partial x^m} = \{\gamma_{im}^j\} \gamma_j + \Gamma_m \gamma_i - \gamma_i \Gamma_m \quad (1.3)$$

and  $T_m^5, L_m$  may be any functions of  $x$ 's.

In this paper in order to apply this theory to the problem of gravitation, I shall consider only the case in which  $T_m^5 = 0, L_m = 0$ . In our case, therefore, the fundamental equation for  $\psi$  becomes

$$\frac{\partial \psi}{\partial x^m} = \Gamma_m \psi. \quad (1.4)$$

Further if we assume that  $ds^2 = g_{ij} dx^i dx^j$  is a positive definite where  $g_{ij} = \gamma_i \gamma_j$ , then the condition of integrability of (1.4) is either