On Wave Geometry. (Continued).

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§ 1. Introduction.

In my previous paper,[1] from the equation:

$$(\overline{ds}\psi)_x = (I+\Lambda_m\delta x^m)(ds\psi)_{x+\delta x} \tag{1.1}$$

in which the parallel displacements makes $ds\psi = 0$ invariant, we obtained the fundamental equation for ψ:

$$\frac{\partial\psi}{\partial x^m} = (-\Lambda_m+2T^{\lambda}_{m}\gamma_\lambda+R_m I)\psi\,. \tag{1.2}$$

We then proceeded with the calculation that the expression:

$$\frac{1}{g_{ll}}\left(\gamma_l\Gamma^i_{lm}-\gamma_l\Lambda_m\gamma_l-\gamma_l\frac{\partial\gamma_l}{\partial x^m}\right) \qquad \text{(not summing by } l\text{)}$$

which is the coefficient of ψ in the right hand side of the equation:

$$\frac{\partial\psi}{\partial x^m}=\frac{1}{g_{ll}}\left(\gamma_l\Gamma^i_{lm}-\gamma_l\Lambda_m\gamma_l-\gamma_l\frac{\partial\gamma_l}{\partial x^m}\right)\psi \qquad \text{(not summing by } l\text{)} \tag{1.3}$$

is independent of the suffix l. In a later section again, we arrived at the same result from the invariancy of Λ_m for constant gauge transformations.

In this paper we will begin with (1.1) generally without putting any assumption.

In order to classify quantities in space exactly, hereafter we say the quantities, which are invariant by G, S-transformations, the quantities on the *Ma*-side of space e. g. g_{ij}, dx^i, Γ^i_{jk} etc.; and the quantities

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