la solution de (4) est

$$a_n = \int_0^{\tau} \frac{d\tau}{\sin^2 h_n \tau} \int_0^{\tau} Y_n e^{w\tau} \sin \tau \, d\tau$$

par conséquant u:

$$u = \sum_{n=1}^{n=\infty} \sin k_n x \left[\int_0^{\tau} \frac{d\tau}{\sin^2 h_n \tau} \int_0^{\tau} Y_n e^{w\tau} \sin h_n \tau \right] \sin h_n \tau \, . ' \, . \quad (5)$$

Cette expression peut être réduit à:

$$u(x_1, \tau_1) = \sum_{n=1}^{n=\infty} \frac{\sin k_n x_1}{h_n} \int_0^{\tau_1} \sin h_n (\tau_1 - \tau) \, Y_n e^{w\tau} \, d\tau .$$

La solution donnée ici satisfait aux conditions au bord ordinaires.

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Be $l^{(p)}_{P}$ $(p \geqq 1)$ the space whose elements are the ranges $(x_1, x_2, \ldots)$ of P-adic numbers such that $\sum_i |x_i|^p_P$ converges. The norm of x is defined by

$$\| x \| = \{ \sum_i | x_i |^p_P \}^{\frac{1}{p}} .$$

The strong convergence is defined in the usual way. The space is complete (P-adic BANACH-space) and separable. We have

$$\| x + y \| \leqq \| x \| + \| y \| ; \quad \| x + y \| \leqq \max (\| x \|, \| y \|)$$

is not true in general. The notions "operator" and "functional" are defined in the usual way. A necessary and sufficient condition for the linearity of an additive operator is given:

$$\| U(x) \| \leqq M P^k \text{ for } \| x \| \leqq P^k .$$

The general form of the linear functionals is given by ${}^P\sum C_i x_i$, where $\{ |C_i|_P \}$ is a bounded range; this is valuable for $p \geqq 1$. For the P-adic convergence of this series for all x in $l^{(p)}_{P}$, it is a necessary and sufficient condition that $\{ |C_i|_P \}$ is bounded.

The weak convergence is interduced as usual by the linear functionals. It is probable that the strong and the weak convergence are identical. This is shown for $p > 1$ in the case that the given range $\{ x^{(n)} \}$ weak convergent to $x = \{ x_i \}$, satisfies the condition that in the ranges $\{ | x_i^{(n)} - x_i |_P \}$ all terms $\neq 0$ are different.

Finally the weak convergence of the functionals and the orthogonality of the vectors is studied.