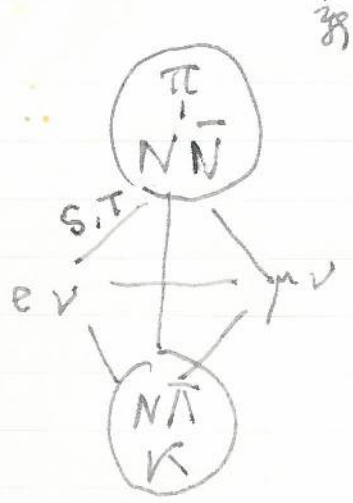
Research Institute for Fundamental Physics
Kyoto University



June 8; '56

新粒子崩壊論.




$0^-$

$\pi \to \mu + \nu$ 1 ; P, A

$\pi \to e + \nu$ $< 0.5 \times 10^{-4}$

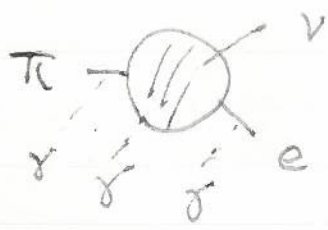
$\mu + N \to N + \nu$ V, A

$N \to N + e + \bar{\nu}$ S. T ; P ?

$\mu \to e + \nu + \nu$ $\rho \simeq 0.55 \pm 0.10$

$\pi \to e + \nu + \gamma$

(time reversal, charge conjugation




$N \bar{N} e \nu$ S T

$\pi \to e + \gamma + \gamma$ (T は小さい)

Gell-Mann $4 \times 10^{-3}$ sec $\Lambda = e^{3/4} M$

Ogawa $\sim 10^{-3}$ sec $\Lambda / M \cong 2 \sim 5$

$g_A \lesssim 10^{-49}$ $g_P \lesssim 10^{-50} \sim 10^{-51}$


$\to \mu + \nu$ $G_+ \sim 10^{-49}\ cm^3$ $\tau_{A)} \sim 10^{-8}$ sec $\Lambda = 1 \sim 10 M$

$\sim 10^{-8} \times 10^{4}$ sec

$P \sim \frac{1}{5} \times 10^{-6}$ sec

$10^{-6}$ sec

$N \bar{N} \mu \nu$ P A $g_A \sim 10^{-49}$ $g_P \sim 10^{-48}$

Fierz term

$\mu^+ + N \to N + \nu$

$\mu^- + \overset{\downarrow}{D} \to N + N + \nu$ { G. T. yes / F yes

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Scale change
mass dependence ?

$\pi^0 \to 2\gamma$

Tanikawa: $\pi \to \mu + \nu$ $\mu + N \to N + \nu$ ?

$\mu$ve$\nu$ $\rho = 0.4 \sim 0.7$ $\rho = 0.55 \pm 0.10$

$$g(\bar{\psi}_\nu O \psi_\mu)(\bar{\psi}_e O \psi_\nu)$$

$$\rho = \frac{3}{4}\,\frac{(g_S - g_T)^2 + (g_V - g_P)^2 + 2(g_A + g_V)}{g_S^2 + 4g_V^2 + 6g_T^2 + 4g_A^2 + g_P^2}$$

SITP : $\rho \leq 3/8$

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