

A, Pais

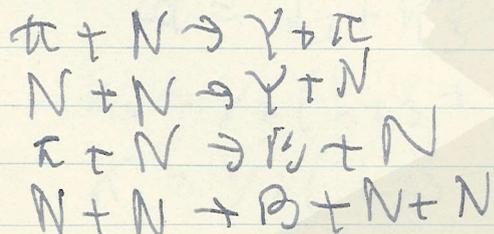
Source of stability of New Particles (1)

Proc. Roch. Conf. 1955, Preprint

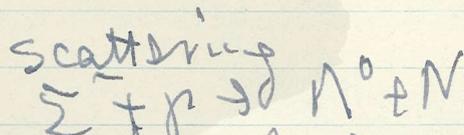
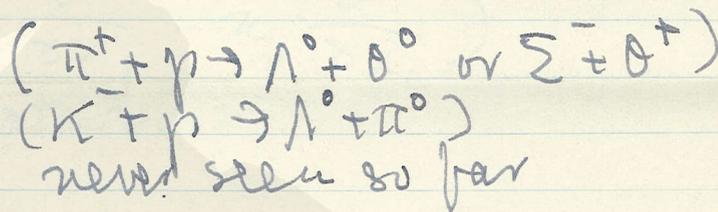
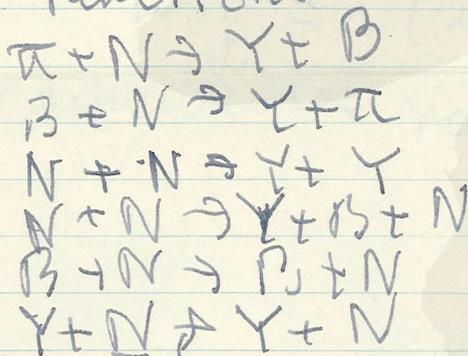
- i) Composite particle model  
 high angular momentum  
 angular correlation, associated production  
 1- ratio of K-particles  
 2  $\Lambda^0$  production

ii) assumption of strong and weak interactions

a) slow reactions



b) fast reactions



(1) Conservation of ~~total~~ number of baryons  
 (including nucleons)

(2) Conservation of charge

(3) Charge independence (relative)

(4) stability (relative)

-	0	+	1	Q
$\Sigma^-$	$\Sigma^0$		$\frac{1}{2}$	$I_3 = -\frac{1}{2}$
$\Sigma^-$	$\Sigma^+$		1	$I_3$
	$\Sigma^0$	$\Sigma^+$	0	$I_3$
	$\Lambda^0$		$\frac{1}{2}$	$I_3 = \frac{1}{2}$
$n$	$p$			

(2)

$$\begin{array}{c}
 \overline{B^-} \quad \overline{B^0} \quad \overline{B^+} \\
 \hline
 \overline{B^0}
 \end{array}
 \quad , \quad
 \begin{array}{c}
 I = 1/2 \\
 Q = I_3 + 1/2
 \end{array}$$

$$\begin{array}{c}
 I = 1/2 \\
 Q = I_3 - 1/2
 \end{array}$$

$$\overline{\pi^-} \quad \overline{\pi^0} \quad \overline{\pi^+} \quad I = 1, \quad Q = I_3$$

$$Q = I_3 + K_3 + 1/2$$

$$K_1 = 1/2 (L_{23} + L_{14})$$

$$K_2 = 1/2 (L_{23} - L_{14})$$

$$L_{ij} = i \left( x_i \frac{\partial}{\partial x_j} - x_j \frac{\partial}{\partial x_i} \right)$$

four dimensional rotation

