

$$\gamma^0 = \frac{0}{1} \Big| \frac{1}{0}$$

$$\gamma^k = \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0}$$

$$\Gamma = \frac{-1}{0} \Big| \frac{0}{1}$$

$$\gamma^\mu \Gamma + \Gamma \gamma^\mu = 0$$

$$\frac{0}{b} \Big| \frac{a}{0} \quad \frac{-1}{0} \Big| \frac{0}{1} = \frac{0}{-b} \Big| \frac{a}{0}$$

$$\frac{-1}{0} \Big| \frac{0}{1} \quad \frac{0}{b} \Big| \frac{a}{0} = \frac{0}{b} \Big| \frac{-a}{0}$$

$$\eta = \begin{cases} + - - - & \varkappa = 1 \\ + + + + & \varkappa = i \end{cases}$$

$$\gamma^\mu \gamma^\nu + \gamma^\nu \gamma^\mu = 2\eta^{\mu\nu} 1$$

$$\tilde{\gamma}^0 = \frac{0}{1} \Big| \frac{1}{0} \quad \frac{0}{1} \Big| \frac{1}{0} = \frac{1}{0} \Big| \frac{0}{1} = 1$$

$$\tilde{\gamma}^k = \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0} \quad \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0} = \frac{-\varkappa^2\sigma_k^2}{0} \Big| \frac{0}{-\varkappa^2\sigma_k^2} = \frac{-\varkappa^2}{0} \Big| \frac{0}{-\varkappa^2} = -\varkappa^2 1$$

$$\gamma^0 \gamma^k = \frac{0}{1} \Big| \frac{1}{0} \quad \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0} = \frac{-\varkappa\sigma_k}{0} \Big| \frac{0}{\varkappa\sigma_k} \quad \gamma^k \gamma^0 = \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0} \quad \frac{0}{1} \Big| \frac{1}{0} = \frac{\varkappa\sigma_k}{0} \Big| \frac{0}{-\varkappa\sigma_k}$$

$$\gamma^{\dot{k}} \gamma^{\ddot{k}} = \frac{0}{-\varkappa\sigma_{\dot{k}}} \Big| \frac{\varkappa\sigma_{\dot{k}}}{0} \quad \frac{0}{-\varkappa\sigma_{\ddot{k}}} \Big| \frac{\varkappa\sigma_{\ddot{k}}}{0} = \frac{-\varkappa^2\sigma_{\dot{k}}\sigma_{\ddot{k}}}{0} \Big| \frac{0}{-\varkappa^2\sigma_{\dot{k}}\sigma_{\ddot{k}}}$$

$$\sigma_k \sigma_{k_i} + \sigma_{k_i} \sigma_k = 0 \Rightarrow \gamma_k \gamma_{k_i} + \gamma_{k_i} \gamma_k = 0$$

$$\tilde{\gamma}^0 = \gamma^0: \quad \tilde{\gamma}^k = -\varkappa^2 \gamma^k$$

$$\tilde{\gamma}^k = \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0} \quad \overset{*}{=} \frac{0}{\bar{\varkappa}\sigma_k^*} \Big| \frac{-\bar{\varkappa}\sigma_k^*}{0} = \frac{0}{\bar{\varkappa}\sigma_k} \Big| \frac{-\bar{\varkappa}\sigma_k}{0} = -\varkappa^2 \frac{0}{-\varkappa\sigma_k} \Big| \frac{\varkappa\sigma_k}{0} \Leftarrow \varkappa^3 = \bar{\varkappa}$$

$$\bar{\gamma}^0 = \gamma^0: \quad \bar{\gamma}^{1:3} = -\varkappa^2 \gamma^{1:3}: \quad \bar{\gamma}^2 = -\varkappa^2 \gamma^2$$

$$\bar{\gamma}^{1:3} = \frac{0}{-\bar{\varkappa}\bar{\sigma}_{1:3}} \left| \begin{array}{c} \bar{\varkappa}\bar{\sigma}_{1:3} \\ 0 \end{array} \right. = \frac{0}{-\bar{\varkappa}\bar{\sigma}_{1:3}} \left| \begin{array}{c} \bar{\varkappa}\bar{\sigma}_{1:3} \\ 0 \end{array} \right. = \varkappa^2 \frac{0}{-\varkappa\sigma_{1:3}} \left| \begin{array}{c} \varkappa\sigma_{1:3} \\ 0 \end{array} \right.$$

$$\bar{\gamma}^2 = \frac{0}{-\bar{\varkappa}\bar{\sigma}_2} \left| \begin{array}{c} \bar{\varkappa}\bar{\sigma}_2 \\ 0 \end{array} \right. = \frac{0}{\bar{\varkappa}\bar{\sigma}_2} \left| \begin{array}{c} -\bar{\varkappa}\bar{\sigma}_2 \\ 0 \end{array} \right. = -\varkappa^2 \frac{0}{-\varkappa\sigma_2} \left| \begin{array}{c} \varkappa\sigma_2 \\ 0 \end{array} \right.$$

$$\dot{\gamma}^0 = \gamma^0: \quad \dot{\gamma}^{1:3} = -\gamma^{1:3}: \quad \dot{\gamma}^2 = \gamma^2$$

$$\dot{\gamma}^{1:3} = *\bar{\gamma}^{1:3} = \varkappa^2 \dot{\gamma}^{1:3} = -\varkappa^2 \varkappa^2 \gamma^{1:3} = -\gamma^{1:3}$$

$$\dot{\gamma}^2 = *\bar{\gamma}^2 = -\varkappa^2 \dot{\gamma}^2 = (-\varkappa^2) (-\varkappa^2) \gamma^2 = \gamma^2$$

$$\dot{\gamma}^{\mu} = \gamma^{\mu}$$

$$\varkappa = i: \dot{\gamma}^{\mu} = \dot{\gamma}^{\mu} = \gamma^{\mu}$$

$$\varkappa = 1: \dot{\gamma}^{\mu} = \gamma^0 \dot{\gamma}^{\mu} \gamma^0 = (\gamma^0 \dot{\gamma}^{\mu}) \gamma^0 = \gamma^{\mu} \dot{\gamma}^0 \gamma^0 = \gamma^{\mu}$$

$$\Gamma \gamma^{\mu} = -\gamma^{\mu} \Gamma$$

$$\Gamma \dot{\gamma}^{\mu} = -\dot{\gamma}^{\mu} \Gamma$$

$$(\gamma^0 \gamma^1 \gamma^2 \gamma^3) \gamma^{\mu} = -\gamma^{\mu} (\gamma^0 \gamma^1 \gamma^2 \gamma^3) \text{ vertausche 3-mal}$$

$$\dot{\gamma}^{\mu} = \pm \gamma^{\mu}$$

$$\sim \dot{\gamma}^{\mu} = -\gamma^{\mu} \sim$$

$$\sim \gamma^{\mu} \sim = \dot{\gamma}^{\mu}$$

$$\text{z.z. } \gamma^0 \gamma^{2-} \dot{\gamma}^{\mu} = -\gamma^{\mu} \gamma^0 \gamma^{2-} \text{ oder } \gamma^0 \gamma^2 \dot{\gamma}^{\mu} = -\gamma^{\mu} \gamma^0 \gamma^2:$$

$$\gamma^0 \gamma^2 \dot{\gamma}^0 = \gamma^0 \gamma^2 \gamma^0 = -\gamma^0 \gamma^0 \gamma^2$$

$$\gamma^0 \gamma^2 \dot{\gamma}^1 = -\gamma^0 \gamma^2 \gamma^1 = \gamma^0 \gamma^1 \gamma^2 = -\gamma^1 \gamma^0 \gamma^2$$

$$\gamma^0 \gamma^2 \dot{\gamma}^2 = \gamma^0 \gamma^2 \gamma^2 = -\gamma^2 \gamma^0 \gamma^2$$

$$\gamma^0 \gamma^2 \dot{\gamma}^3 = -\gamma^0 \gamma^2 \gamma^3 = \gamma^0 \gamma^3 \gamma^2 = -\gamma^3 \gamma^0 \gamma^2$$