$$\begin{array}{c|c} 2 & 1 \\ \hline 1 & 2 \end{array} \underset{C \in O(2)}{=} C \begin{array}{c|c} \lambda_1 & 0 \\ \hline 0 & \lambda_2 \end{array} \overset{*}{C} = B^2$$

$$\frac{1}{2} \begin{array}{c|c|c} 1 & \sqrt{2} & 1 \\ \hline 1 & -\sqrt{2} & 1 \\ \hline -\sqrt{2} & 0 & \sqrt{2} \end{array} \in O(3)/SO(3) \ ?$$

orthonormiere $-1 \mid 1 \mid i\sqrt{2}$: $\quad 1 \mid 1 \mid 0$: $\quad i \mid 0 \mid -\sqrt{2} \ \in \mathbb{C}^3$

$$A = -A^T \in \mathbb{K}^{n\times n} \Longrightarrow \begin{cases} \chi_A(-\lambda) = \overset{n}{(-1)}\chi_A(\lambda) & \text{char poly} \\ n \text{ odd } \Longrightarrow & \det A = 0 \end{cases}$$

$$\det \begin{array}{c|c|c|c} a_1 & b_2 & c_3 & d_4 \\ \hline b_1 & c_2 & d_3 & 0 \\ \hline c_1 & d_2 & 0 & 0 \\ \hline d_1 & 0 & 0 & 0 \end{array}$$