Note for Osci.h : Get Theta 14.

In condition of 4V, $R = R_{23} R_{13} R_{12} R_{14} R_{24} R_{34}$.

In vacuum, $R_{24} = R_{34} = I$. But in matter, $\theta_{m_{24}}, \theta_{m_{34}} \neq 0$.

So we cannot use parameterization $(R_{23} R_{13} R_{12} R_{14})_m = U_m$ to determine θ_{12m}, θ_{13m} & θ_{14m}.

The method taken here is :

$$U_m = (R_{23} R_{13} R_{12} R_{14} R_{24} R_{34})_m.$$

Since $R_{24} R_{34} \vec{e_1} = \vec{e_1}$, $R_{13}^{\dagger} R_{23}^{\dagger} \vec{e_4} = \vec{e_4}$.

we have $\langle e_4 | R_{23}^m R_{13}^m R_{12}^m R_{14}^m R_{24}^m R_{34}^m | e_1 \rangle$

$$= \langle e_4 | R_{14}^m | e_1 \rangle.$$

$$= -\sin \theta_{m14}.$$

Thus $U_m \Rightarrow \theta_{m14}$.

θ_{m12}, θ_{m13} is taken the same as of 3V situation.