

Transformace

$$\mathbf{T}_{ab} = \left[\begin{array}{ccc|ccc} \cos \gamma_{ab} & \sin \gamma_{ab} & 0 & 0 & 0 & 0 \\ -\sin \gamma_{ab} & \cos \gamma_{ab} & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & \cos \gamma_{ab} & \sin \gamma_{ab} & 0 \\ 0 & 0 & 0 & -\sin \gamma_{ab} & \cos \gamma_{ab} & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{array} \right]$$

$$\mathbf{r}_{ab} = \mathbf{T}_{ab}^{-1} \mathbf{r}_{ab}^* = \mathbf{T}_{ab}^T \mathbf{r}_{ab}^*$$

$$\mathbf{r}_{ab}^* = \begin{Bmatrix} u_a^* \\ w_a^* \\ \varphi_a^* \\ u_b^* \\ w_b^* \\ \varphi_b^* \end{Bmatrix} = \mathbf{T}_{ab} \mathbf{r}_{ab} = \begin{Bmatrix} u_a c + w_a s \\ -u_a s + w_a c \\ \varphi_a \\ u_b c + w_b s \\ -u_b s + w_b c \\ \varphi_b \end{Bmatrix}$$

$$\mathbf{R}_{ab}^* = \mathbf{T}_{ab} \mathbf{R}_{ab}, \mathbf{R}_{ab} = \mathbf{T}_{ab}^{-1} \mathbf{R}_{ab}^* = \mathbf{T}_{ab}^T \mathbf{R}_{ab}^*$$

$$\bar{\mathbf{R}}_{ab} = \begin{Bmatrix} \bar{X}_{ab} \\ \bar{Z}_{ab} \\ \bar{M}_{ab} \\ \bar{X}_{ba} \\ \bar{Z}_{ba} \\ \bar{M}_{ba} \end{Bmatrix} = \mathbf{T}_{ab}^T \bar{\mathbf{R}}_{ab}^* = \begin{Bmatrix} \bar{X}_{ab}^* c - \bar{Z}_{ab}^* s \\ \bar{X}_{ab}^* s + \bar{Z}_{ab}^* c \\ \bar{M}_{ab}^* \\ \bar{X}_{ba}^* c - \bar{Z}_{ba}^* s \\ \bar{X}_{ba}^* s + \bar{Z}_{ba}^* c \\ \bar{M}_{ba}^* \end{Bmatrix}$$

$$\hat{\mathbf{R}}_{ab} = \mathbf{T}_{ab}^T \hat{\mathbf{R}}_{ab}^* = \mathbf{T}_{ab}^T \mathbf{k}_{ab}^* \mathbf{r}_{ab}^* = \mathbf{T}_{ab}^T \mathbf{k}_{ab}^* \mathbf{T}_{ab} \mathbf{r}_{ab} = \mathbf{k}_{ab} \mathbf{r}_{ab}$$

$$\mathbf{k}_{ab} = \mathbf{T}_{ab}^T \mathbf{k}_{ab}^* \mathbf{T}_{ab}$$