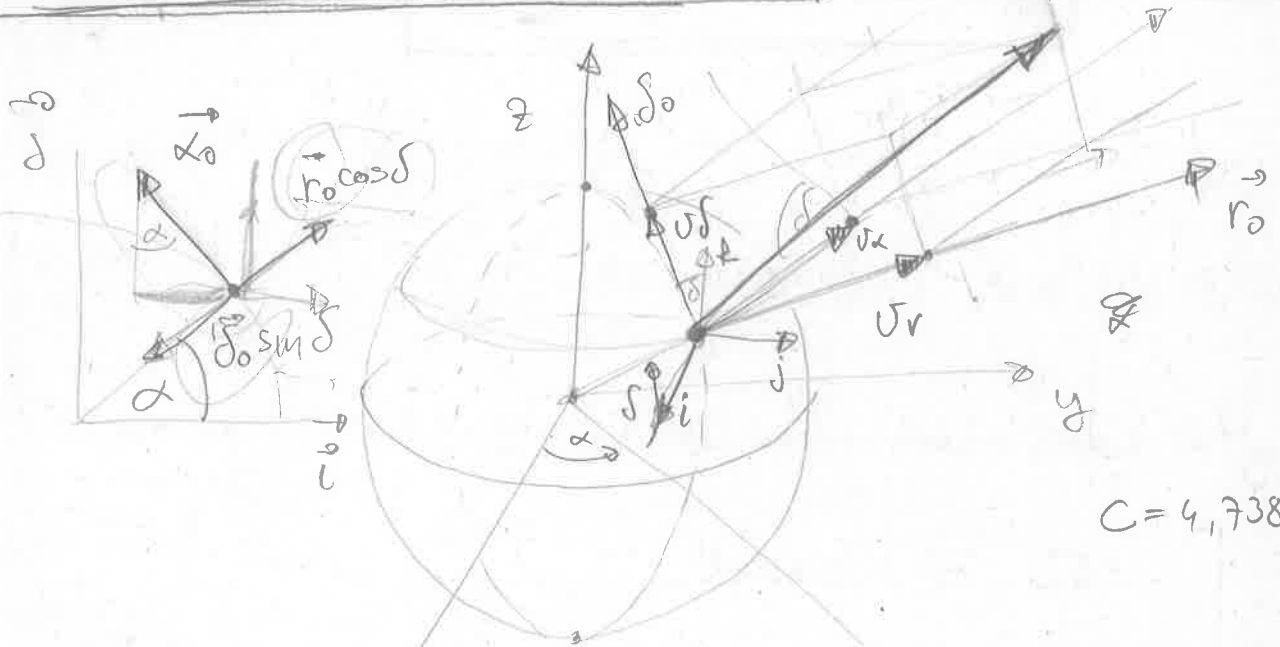




$$C = 4,738$$

$$v_\alpha = \frac{\mu_\alpha \cos \delta}{\pi} \cdot C$$

$$v_\delta = \frac{\mu_\delta}{\pi} C$$

$\vec{\alpha}_0, \vec{\delta}_0, \vec{r}_0$ - ASTRONOMSKI
TRIEDAR

$$\vec{\alpha}_0 = -\sin \alpha \vec{i} + \cos \alpha \vec{j}$$

$$\vec{\delta}_0 = -\sin \delta \cos \alpha \vec{i} - \sin \delta \sin \alpha \vec{j} + \cos \delta \vec{k}$$

$$\vec{r}_0 = \cos \delta \cos \alpha \vec{i} + \cos \delta \sin \alpha \vec{j} + \sin \delta \vec{k}$$

~~$$v_x = v_r \cos \alpha \cos \delta - v_\alpha \sin \alpha - v_\delta \cos \alpha \sin \delta$$~~

$$v_x = \vec{v} \cdot \vec{i} = v_r \cos \alpha \cos \delta - v_\alpha \sin \alpha - v_\delta \cos \alpha \sin \delta$$

$$v_y = \vec{v} \cdot \vec{j} = v_r \sin \alpha \cos \delta + v_\alpha \cos \alpha - v_\delta \sin \alpha \sin \delta$$

$$v_z = \vec{v} \cdot \vec{k} = v_r \sin \delta + 0 + v_\delta \cos \delta$$

MATRICA ROTACIJE

$$R = \begin{bmatrix} \cos \alpha \cos \delta & -\sin \alpha & -\cos \alpha \sin \delta \\ \sin \alpha \cos \delta & \cos \alpha & -\sin \alpha \sin \delta \\ \sin \delta & 0 & \cos \delta \end{bmatrix}$$

$$\begin{bmatrix} v_x \\ v_y \\ v_z \end{bmatrix} = R \begin{bmatrix} v_r \\ v_\alpha \\ v_\delta \end{bmatrix}$$

MATRICA ROTACIJE

$$\begin{bmatrix} U_x \\ U_y \\ U_r \end{bmatrix} = R \begin{bmatrix} U_x \\ U_y \\ U_z \end{bmatrix}$$

$$R = \begin{pmatrix} -\sin \alpha & \cos \alpha & 0 \\ -\cos \alpha \sin \delta & -\sin \alpha \sin \delta & \cos \delta \\ \cos \alpha \cos \delta & \sin \alpha \cos \delta & \sin \delta \end{pmatrix} \begin{matrix} \rightarrow \vec{\alpha}_0 \\ \rightarrow \vec{\delta}_0 \\ \rightarrow \vec{\nu}_0 \end{matrix}$$

$$U_\alpha = U \cdot \vec{\alpha}_0 = (U_x \vec{i} + U_y \vec{j} + U_z \vec{k}) \cdot (-\sin \alpha \vec{i} + \cos \alpha \vec{j})$$

$$U_\alpha = -U_x \sin \alpha + U_y \cos \alpha = \frac{\mu_\alpha \cos \delta}{\pi} \cdot c \cdot r \quad | \text{ 1018}$$

$$U_\delta = \vec{U} \cdot \vec{\delta}_0$$

$$U_\delta = -U_x \cos \alpha \sin \delta - U_y \sin \alpha \sin \delta + U_z \cos \delta = \frac{\mu_\delta \cos \delta}{\pi} \cdot c \cdot r$$

$$\vec{U}_r = \vec{U} \cdot \vec{r}_0$$

$$U_r = U_x \cos \alpha \cos \delta + U_y \sin \alpha \cos \delta + U_z \sin \delta$$

$$U_\alpha = \frac{\mu_\alpha \cos \delta}{\pi} \cdot c$$

$$U_\delta = \frac{\mu_\delta}{\pi} \cdot c \quad | \quad c = 4,738$$

ODREĐIVANJE RADIJANATA

$$\begin{aligned} U_\alpha \cdot \mu_\delta &= -\mu_\delta \sin \alpha U_x + \mu_\delta \cos \alpha U_y = \mu_\alpha \mu_\delta \cos \delta \cdot c \cdot r \\ -\mu_\alpha \underbrace{U_\delta}_{\cos \delta} &= \mu_\alpha \underbrace{\cos \alpha \sin \delta}_{\cos \delta} U_x + \mu_\alpha \underbrace{\sin \alpha \sin \delta}_{\cos \delta} U_y - \mu_\alpha U_z \cos \delta = \mu_\delta \mu_\alpha \cos \delta \cdot c \cdot r \end{aligned}$$