$$\mathbf{u}(t) = \begin{pmatrix} 1 \\ \sin t \\ \cos t \\ \dfrac{\operatorname{ch}(\frac{3\pi}{2} - t)}{\operatorname{ch}\frac{3\pi}{2}} - 1 \\ \frac{1}{100}\left(e^{\sin t} + t\sin t - 1\right) \end{pmatrix}$$

$$\mathbf{u}'(t) = \begin{pmatrix} 0 \\ \cos t \\ -\sin t \\ -\dfrac{\operatorname{sh}(\frac{3\pi}{2} - t)}{\operatorname{ch}\frac{3\pi}{2}} \\ \frac{1}{100}\left(e^{\sin t}\cos t + t\cos t + \sin t\right) \end{pmatrix} = \mathbf{f}(\mathbf{u}, t) = \begin{pmatrix} 0 \\ u_1 u_3 \\ -u_1 u_2 \\ u_4 + u_1 - \dfrac{e^{t-\frac{3\pi}{2}}}{u_1 \operatorname{ch}\frac{3\pi}{2}} \\ \frac{1}{100}\left(e^{u_2}u_3 + tu_3 + u_2\right) \end{pmatrix}$$

$$\mathbf{F}(\mathbf{a}, \mathbf{b}) = \begin{pmatrix} c(a_1 + b_1 - 2) \\ \frac{1}{1000}\left(\dfrac{c|(\mathbf{a}, \mathbf{b})|}{|\mathbf{a}||\mathbf{b}|}\right)^2 \\ |a_3 + b_3|\left(a_3 - e^{-(b_3+1)}\right) + \dfrac{c(a_4 - b_4)^4}{1 + (a_4 - b_4)^2} \\ \frac{1}{100}c|a_4 - b_4| \\ \frac{1}{1000}\left|\dfrac{1}{1 + (a_5 - b_5)^2 c^2} - 1\right| \end{pmatrix}, c = \min\left(\frac{1}{\max^2\left(\mathbf{a}_{\text{макс. по модулю}}, \mathbf{b}_{\text{макс. по модулю}}\right)}, 1\right)^2$$

$$t \in [0, 3\pi], \mathbf{u}(0) = \begin{pmatrix} 1 \\ 0 \\ 1 \\ 0 \\ 0 \end{pmatrix}, \mathbf{u}(3\pi) = \begin{pmatrix} 1 \\ 0 \\ -1 \\ 0 \\ 0 \end{pmatrix}, \mathbf{F}(\mathbf{u}(0), \mathbf{u}(3\pi)) = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$