

Метод контурных токов

$$ORIGIN := 1 \quad j := \sqrt{-1}$$

$$Z := \begin{bmatrix} 12j \\ 56 + 33j \\ 81 - 52j \\ 79 \\ 39 - 21j \\ 43 - 26j \end{bmatrix} \quad E := \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 11 \cdot e^{j \cdot 246^{(0)}} \end{bmatrix} \quad J := \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

$$ZD := \text{diag}(Z) \quad G := \frac{1}{ZD} \quad ZD = \begin{bmatrix} 12i & 0 & 0 & 0 & 0 & 0 \\ 0 & 56 + 33i & 0 & 0 & 0 & 0 \\ 0 & 0 & 81 - 52i & 0 & 0 & 0 \\ 0 & 0 & 0 & 79 & 0 & 0 \\ 0 & 0 & 0 & 0 & 39 - 21i & 0 \\ 0 & 0 & 0 & 0 & 0 & 43 - 26i \end{bmatrix}$$

$$A := \begin{bmatrix} -1 & 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 & 1 & -1 \\ 1 & 0 & 1 & -1 & 0 & 0 \end{bmatrix} \quad B := \begin{bmatrix} -1 & -1 & 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & -1 & 0 & -1 \\ 1 & 0 & 0 & 1 & -1 & 0 \end{bmatrix}$$

$$IK := (B \cdot ZD \cdot B^T)^{-1} \cdot (B \cdot E + B \cdot ZD \cdot J) \quad IK = \begin{bmatrix} -0.041 - 0.045i \\ -0.027 - 0.088i \\ -0.008 - 0.064i \end{bmatrix}$$

$$I := B^T \cdot IK \quad I = \begin{bmatrix} 0.033 - 0.019i \\ 0.041 + 0.045i \\ -0.015 + 0.043i \\ 0.018 + 0.024i \\ 0.008 + 0.064i \\ 0.027 + 0.088i \end{bmatrix}$$

$$IZ := I - J \quad IZ = \begin{bmatrix} 0.033 - 0.019i \\ 0.041 + 0.045i \\ -0.015 + 0.043i \\ 0.018 + 0.024i \\ 0.008 + 0.064i \\ 0.027 + 0.088i \end{bmatrix}$$