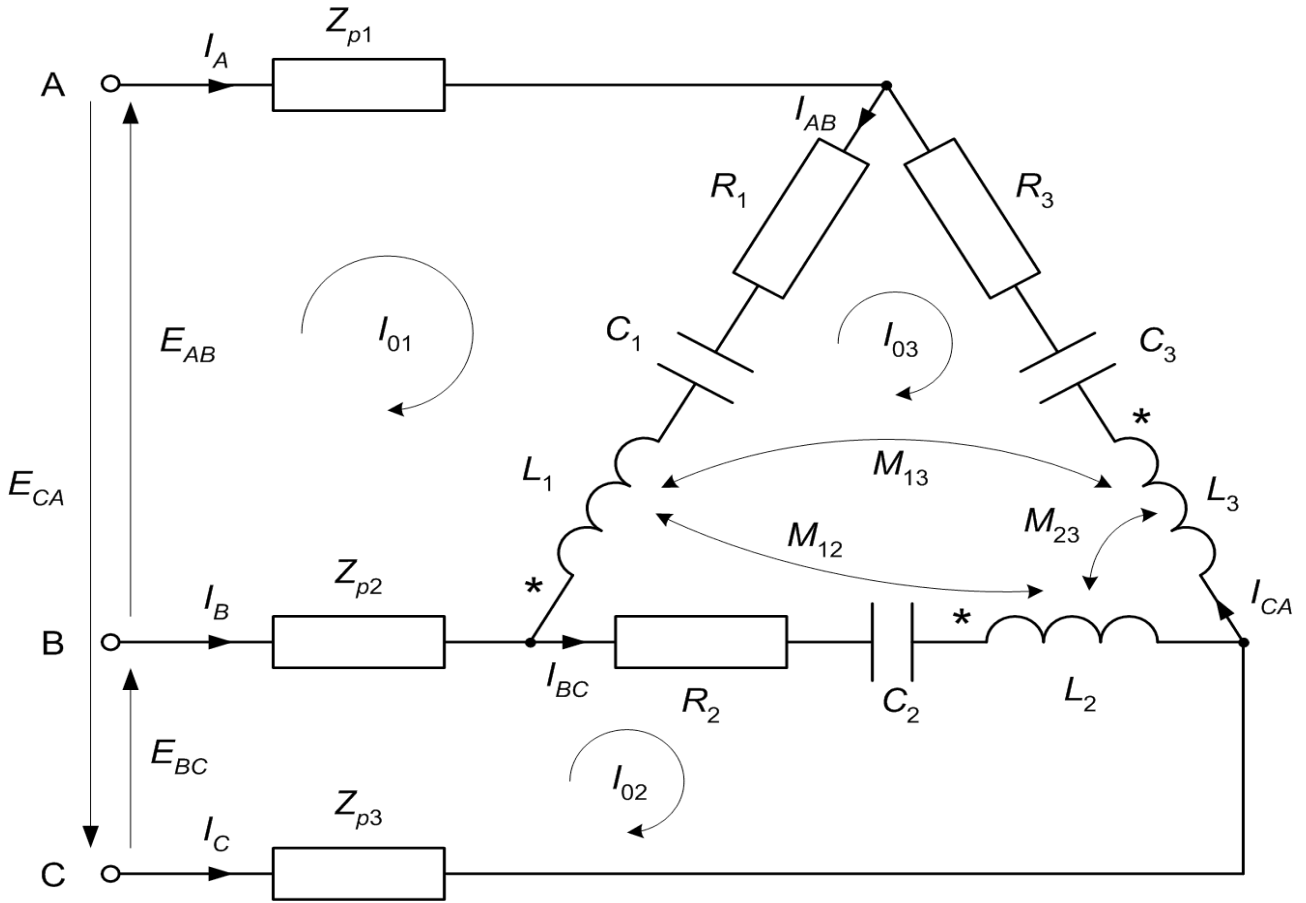


Three-phase circuit:



$$\begin{aligned}
 E_{AB} &= Z_{p1} I_A + (R_1 + Z_{C1} + Z_{L1}) I_{AB} - Z_{M12} I_{BC} + Z_{M13} I_{CA} - Z_{p2} I_B \\
 E_{BC} &= Z_{p2} I_B + (R_2 + Z_{C2} + Z_{L2}) I_{BC} - Z_{M12} I_{AB} - Z_{M23} I_{CA} - Z_{p3} I_C \\
 0 &= (R_1 + Z_{C1} + Z_{L1}) I_{AB} - Z_{M12} I_{BC} + Z_{M13} I_{CA} + (R_2 + Z_{C2} + Z_{L2}) I_{BC} \\
 &\quad - Z_{M12} I_{AB} - Z_{M23} I_{CA} + (R_3 + Z_{C3} + Z_{L3}) I_{CA} - Z_{M23} I_{BC} + Z_{M13} I_{AB}
 \end{aligned}$$

$$I_{AB} = I_{o1} - I_{o3}, \quad I_{BC} = I_{o2} - I_{o3}, \quad I_{CA} = -I_{o3}, \quad I_A = I_{o1}, \quad I_B = I_{o2} - I_{o1}, \quad I_C = -I_{o2}$$