Nuttige Inligting/*Useful information*

Kragstelsels/*Power systems*

Jacobi:

$$x_k(i+1)=\frac{1}{A_{kk}}\left[y_k-\sum_{n=1}^{k-1}A_{kn}x_n(i)-\sum_{n=k+1}^{N}A_{kn}x_n(i)\right]\quad k=1,2,\cdots,N$$

Gauss-Seidel:

$$x_k(i+1)=\frac{1}{A_{kk}}\left[y_k-\sum_{n=1}^{k-1}A_{kn}x_n(i+1)-\sum_{n=k+1}^{N}A_{kn}x_n(i)\right]\quad k=1,2,\cdots,N$$

$$V_k(i+1)=\frac{1}{Y_{kk}}\left[\frac{P_k-jQ_k}{V_k^*(i)}-\sum_{n=1}^{k-1}Y_{kn}V_n(i+1)-\sum_{n=k+1}^{N}Y_{kn}V_n(i)\right]\quad k=1,2,\mathrm{L}\ ,N$$

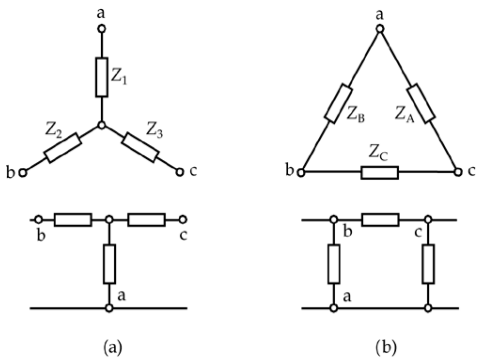
$$Q_k=V_k(i)\sum_{n=1}^{N}Y_{kn}V_n(i)\sin[\delta_k(i)-\delta_n(i)-\theta_{kn}]$$

Newton_Raphson:

$$y_k=P_k(\mathbf{x})=V_k\sum_{n=1}^{N}Y_{kn}V_n\cos(\delta_k-\delta_n-\theta_{kn})\quad k=2,3...N$$

$$y_{k+N}=Q_k(\mathbf{x})=V_k\sum_{n=1}^{N}Y_{kn}V_n\sin(\delta_k-\delta_n-\theta_{kn})\quad k=2,3...N$$

Ster-delta transformasie/*Star-Delta transformation:*



$$Z_A=\frac{Z_1Z_2+Z_2Z_3+Z_3Z_1}{Z_2}\quad Z_B=\frac{Z_1Z_2+Z_2Z_3+Z_3Z_1}{Z_3}\quad Z_C=\frac{Z_1Z_2+Z_2Z_3+Z_3Z_1}{Z_1}$$

$$Z_1=\frac{Z_AZ_B}{Z_A+Z_B+Z_C}\quad Z_2=\frac{Z_BZ_C}{Z_A+Z_B+Z_C}\quad Z_3=\frac{Z_CZ_A}{Z_A+Z_B+Z_C}$$

Hoogspanning/*High voltage*

$E = \dfrac{V}{r\ln(b/a)}$ (cylinders) $E = \dfrac{V}{r^2(1/a - 1/b)}$ (spheres)

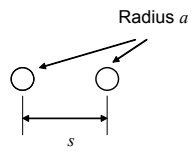
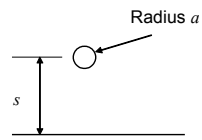
ε_0=8,854 pF/m $E(Peek) = 3\,1m\delta(1+0.308\ (\delta a)^{-0.5})$ $\delta = \dfrac{p(t_0+273)}{p_0(t+273)}$ t_0=25°C

$C = \dfrac{\varepsilon_0 \varepsilon_r A}{d}$ $C = \dfrac{2\pi\varepsilon_0\varepsilon_r}{\mathbf{ln}(b/a)}$ $\dfrac{\alpha(E)}{p} = A\exp(-Bp/E)$ $V_c = B\dfrac{pd}{\ln(pdA/k)}$

$n = n_0 exp(\forall d)$ $\alpha d > k$ $\int_0^x \alpha\, dx = 20$ $\varepsilon_1 E_1 = \varepsilon_2 E_2$

$I_c = (15.3/SCL)^2$ $V_c = \dfrac{NL}{(n+1)}\left[\dfrac{r_p}{N-A}\right]^{\frac{n}{n+1}}$ $r_p = \dfrac{F}{L\sigma_s}$ $F = \int_0^L \dfrac{1}{2\pi r(s)}ds$

$P = 2\pi f CV^2 \tan\delta$

	Maximum Field Strength	
$p = \dfrac{s+a}{a}$		
Spheres	$E_{max} = 0.77\ p^{0.81}\ V/s$ (2.6)	$E_{max} = 0.87\ p^{1.03}\ V/s$ (2.7)
Cylinders	$E_{max} = 0.624\ p^{0.626}\ V/s$ (2.8)	$E_{max} = 0.606\ p^{0.8}\ V/s$ (2.9)