

自动控制实践A

(基波)

在三相对称绕组, 极对数 $p=1$, 绕组为集中整距绕组, 以下为单相对应的电流及其脉振磁动势分解。

A相 $i_A = I_m \cos \omega t$

$$F_{A1} = F_{\phi1} \cos \theta_s \cos \omega t = \frac{1}{2} F_{\phi1} (\cos(\theta_s + \omega t) + \cos(\theta_s - \omega t))$$

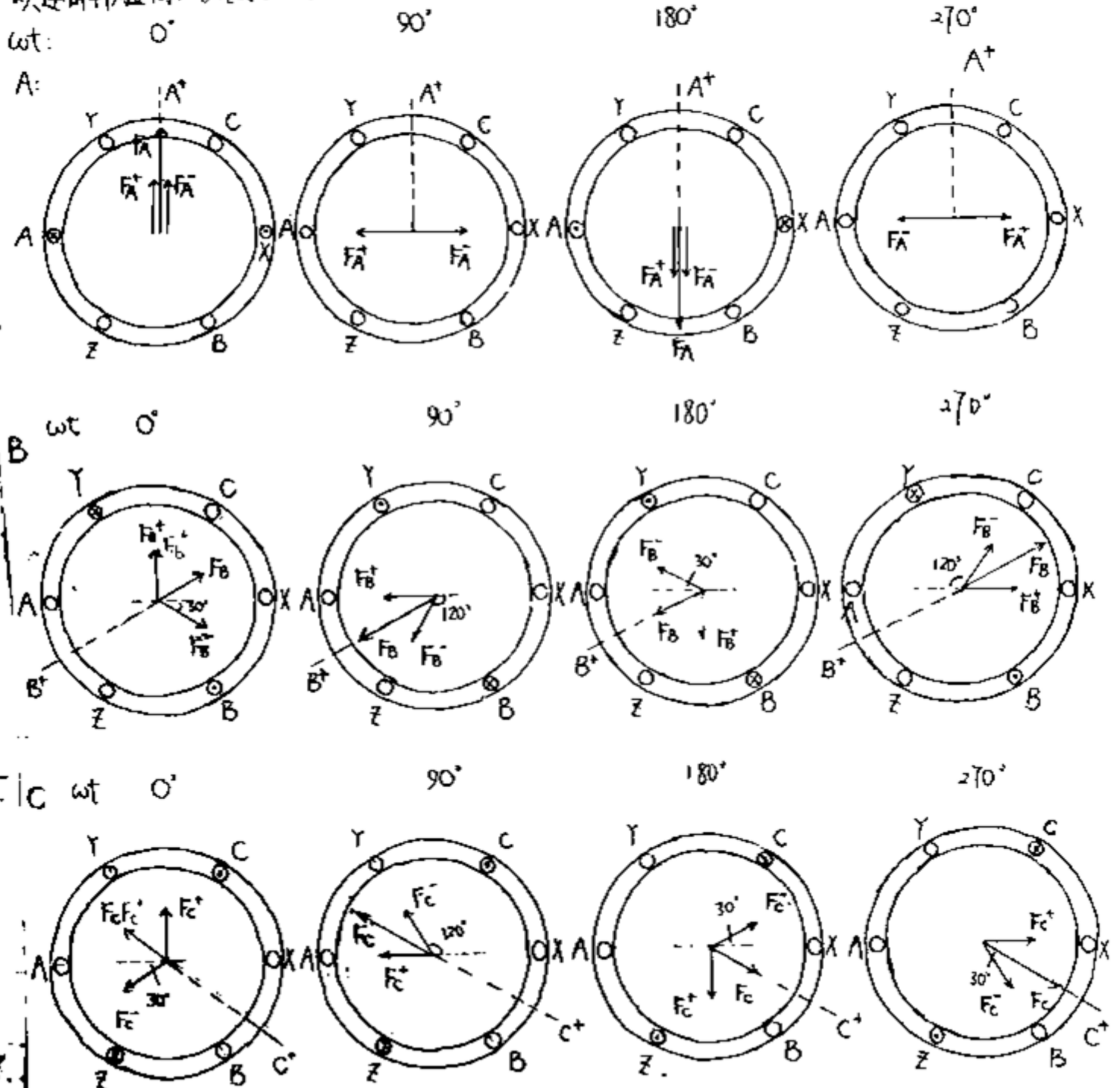
B相 $i_B = I_m \cos(\omega t - 120^\circ)$

$$F_{B1} = F_{\phi1} \cos(\theta_s - 120^\circ) \cos(\omega t - 120^\circ) = \frac{1}{2} F_{\phi1} (\cos(\theta_s + \omega t - 240^\circ) + \cos(\theta_s - \omega t))$$

C相 $i_C = I_m \cos(\omega t - 240^\circ)$

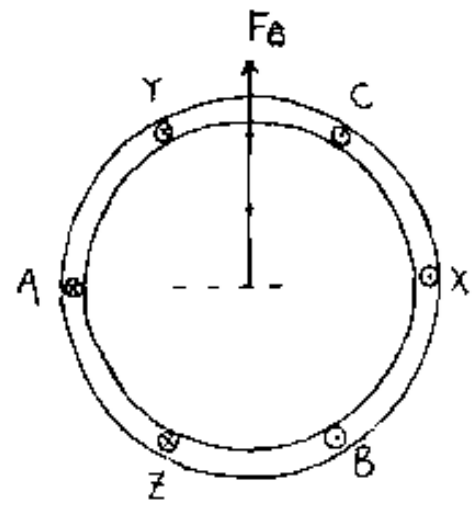
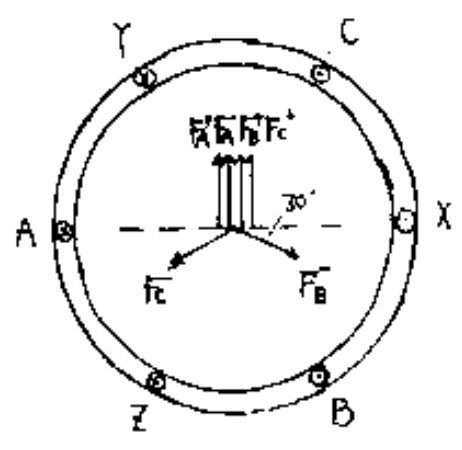
$$F_{C1} = F_{\phi1} \cos(\theta_s - 240^\circ) \cos(\omega t - 240^\circ) = \frac{1}{2} F_{\phi1} (\cos(\theta_s + \omega t + 120^\circ) + \cos(\theta_s - \omega t))$$

以逆时针为正向, 电流首进尾出为正。

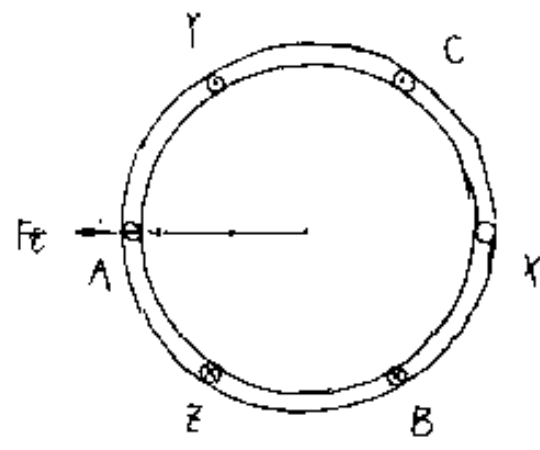
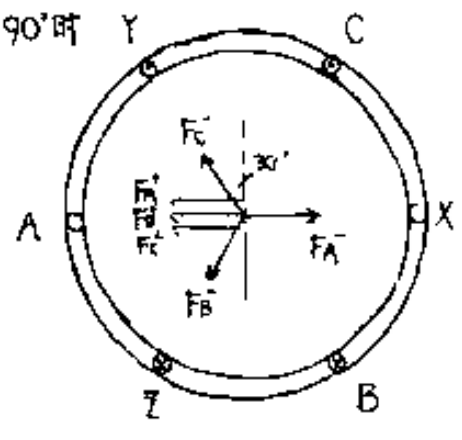


分四张图, 同时在电机上画 F_A^+ , F_A^- , F_B^+ , F_B^- , F_C^+ , F_C^- 以及合成向量

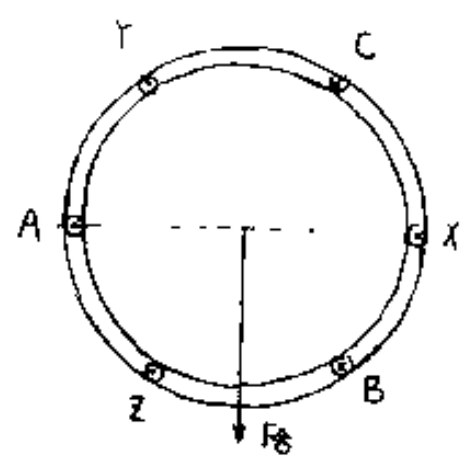
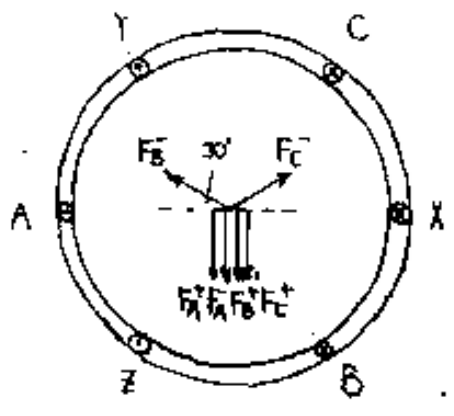
$\omega t = 0^\circ$ 时



$\omega t = 90^\circ$ 时



$\omega t = 180^\circ$



$\omega t = 270^\circ$

