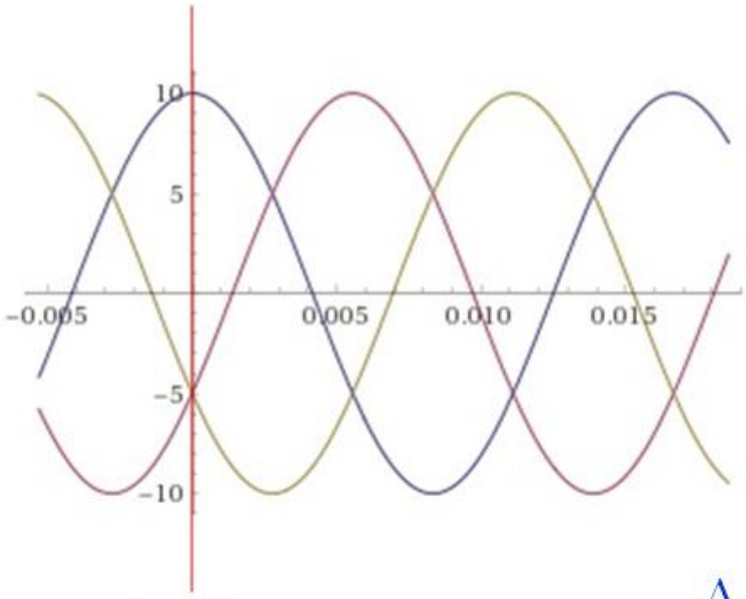
Rotating Magnetic Field

Dr. Hangtian Lei
Assistant Professor
Department of Electrical and Computer Engineering
University of Idaho

$$i_A(t) = 10\cos(120\pi t)\ \text{A}$$

$$i_B(t) = 10\cos(120\pi t - 2/3\pi)\ \text{A}$$

$$i_C(t) = 10\cos(120\pi t + 2/3\pi)\ \text{A}$$

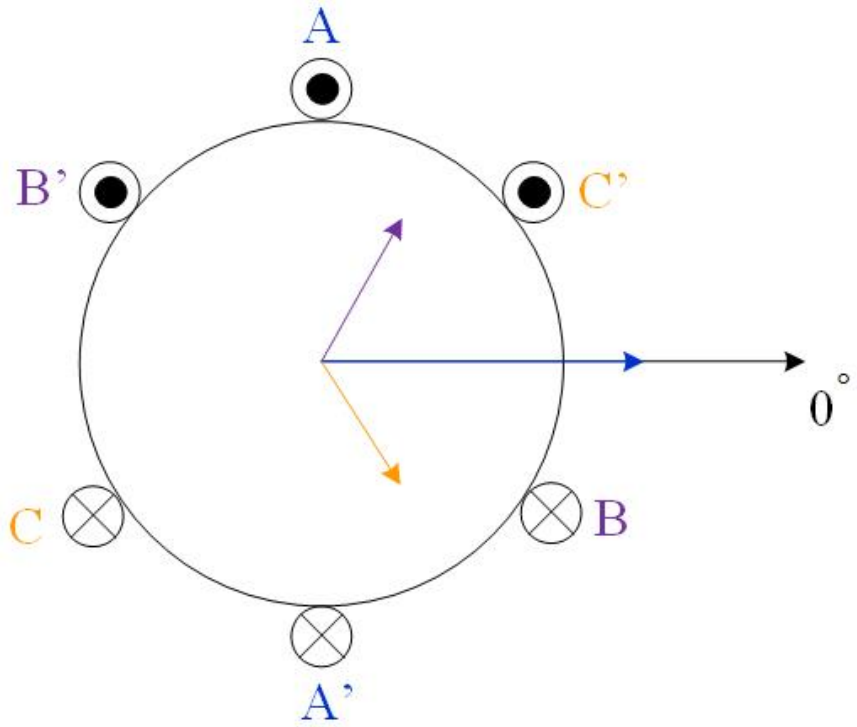


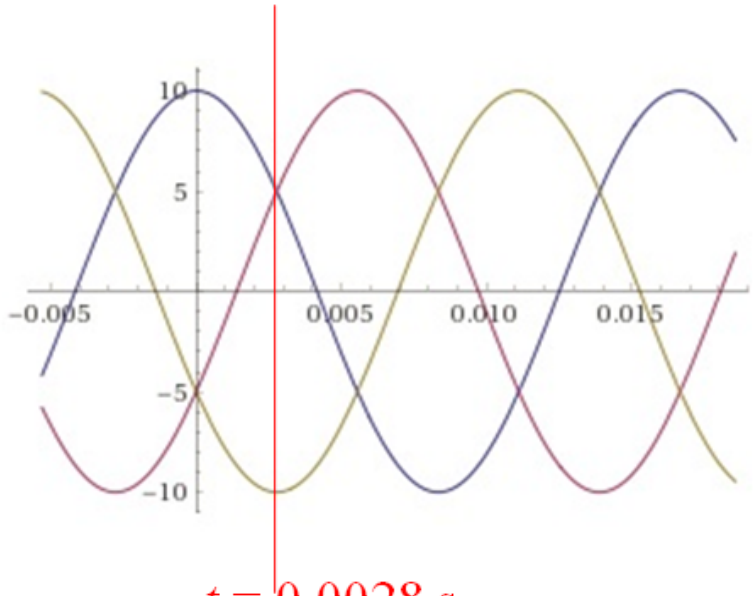
$i_A = 10$ A

$i_B = -5$ A

$i_C = -5$ A

$t = 0$ s





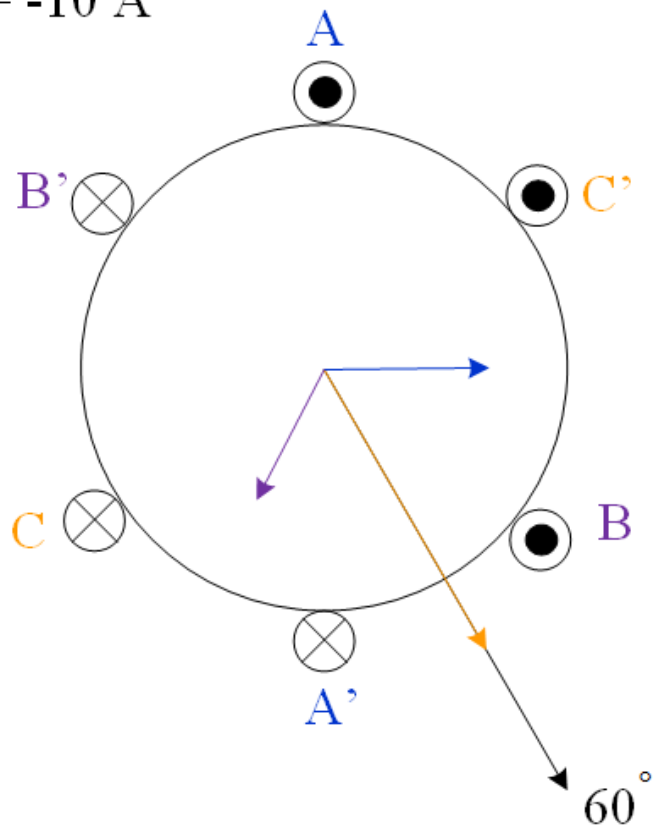
$i_A = 5$ A

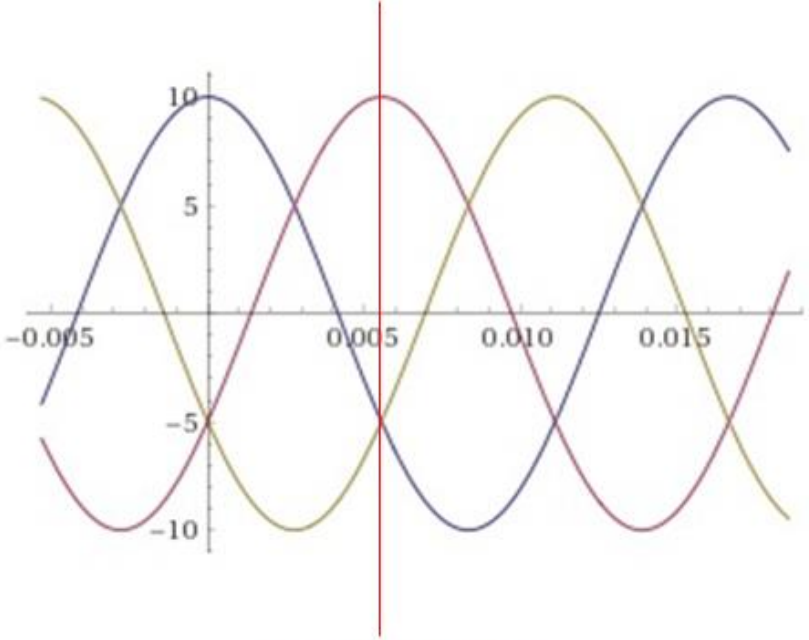
$i_B = 5$ A

$i_C = -10$ A

$t = 0.0028$ s

(1/6 cycle)



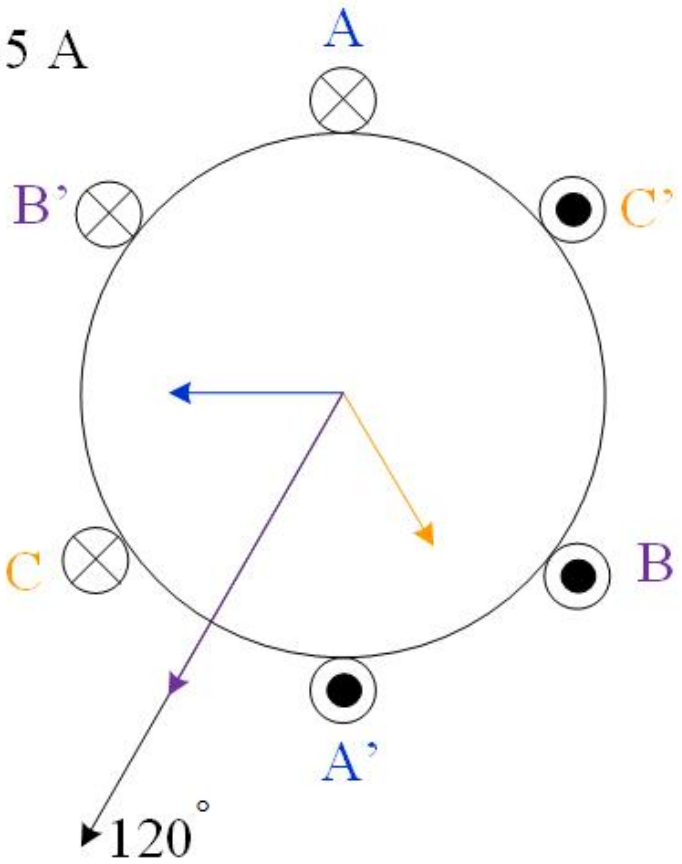


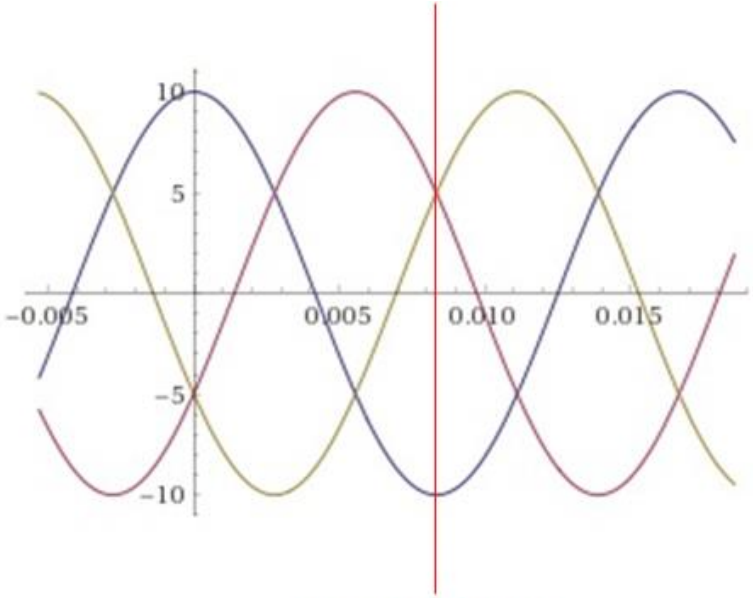
i_A = -5 A

i_B = 10 A

i_C = -5 A

t = 0.0056 s
(1/3 cycle)



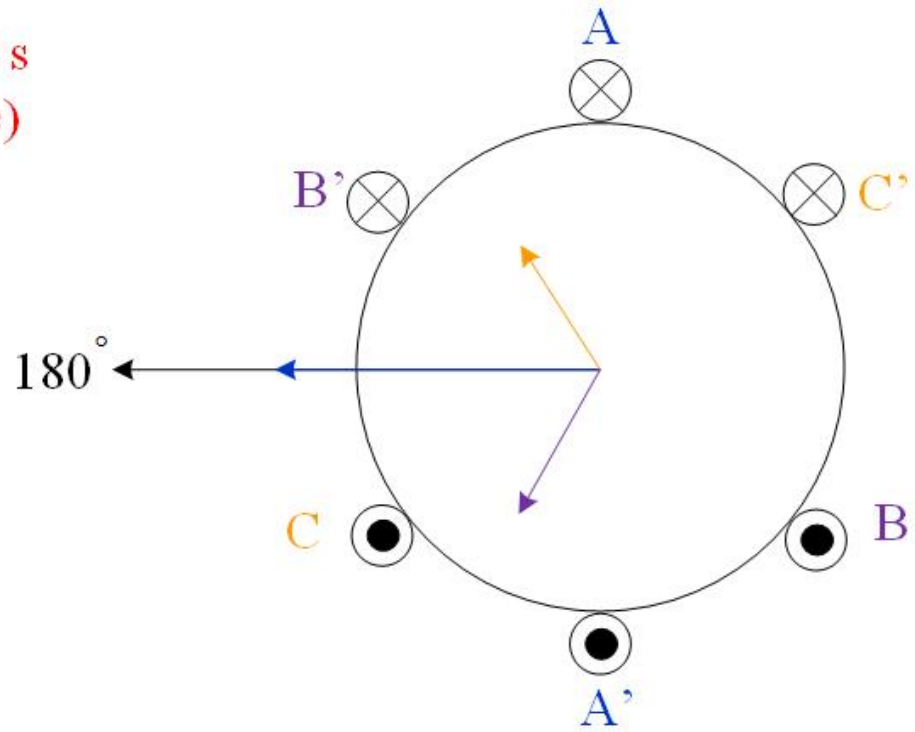


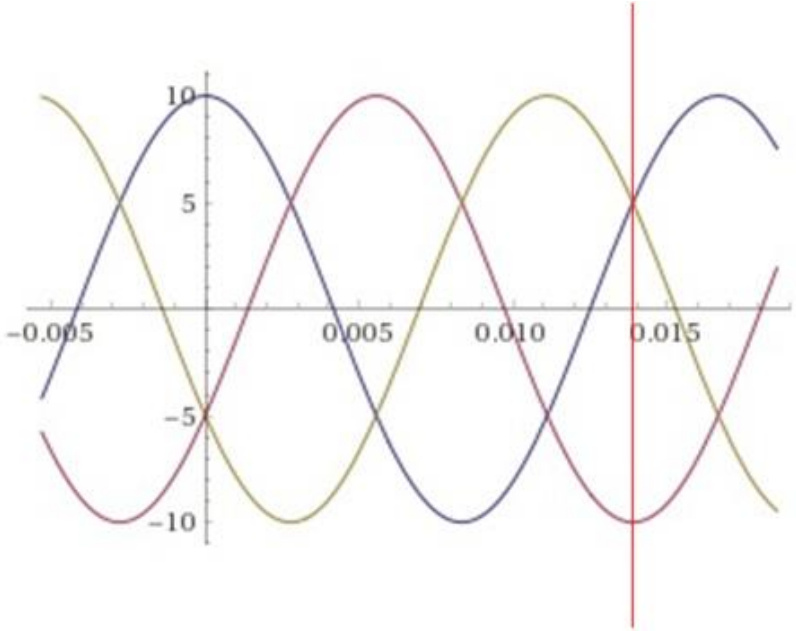
i_A = -10 A

i_B = 5 A

i_C = 5 A

t = 0.0083 s
(1/2 cycle)





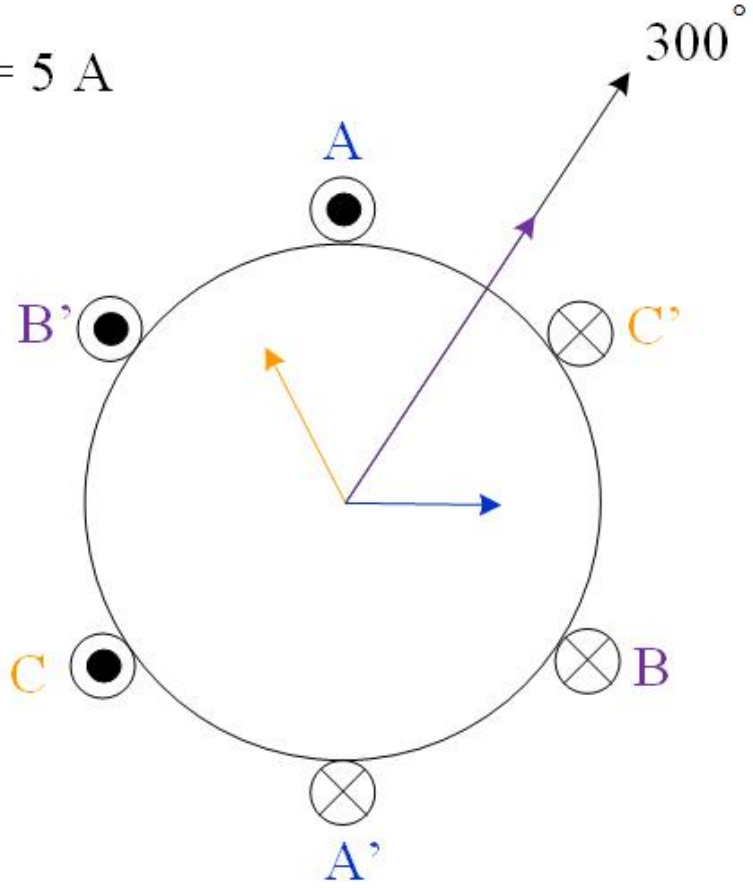
$i_A = 5$ A

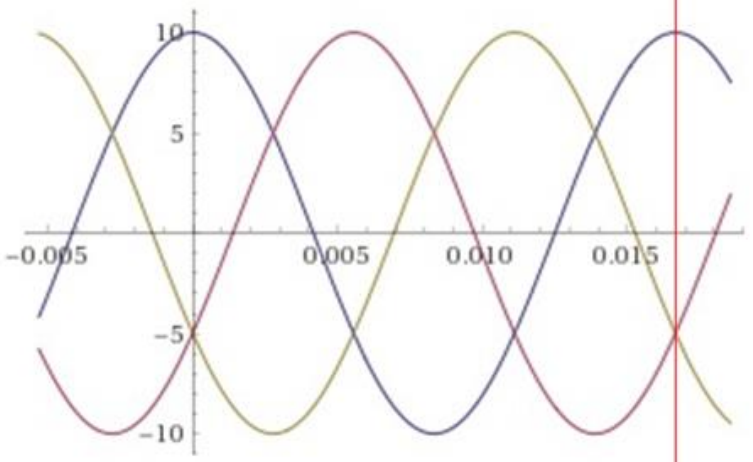
$i_B = -10$ A

$i_C = 5$ A

$t = 0.0139$ s

(5/6 cycle)





$i_A = 10$ A

$i_B = -5$ A

$i_C = -5$ A

$t = 0.0167$ s
(1 full cycle)