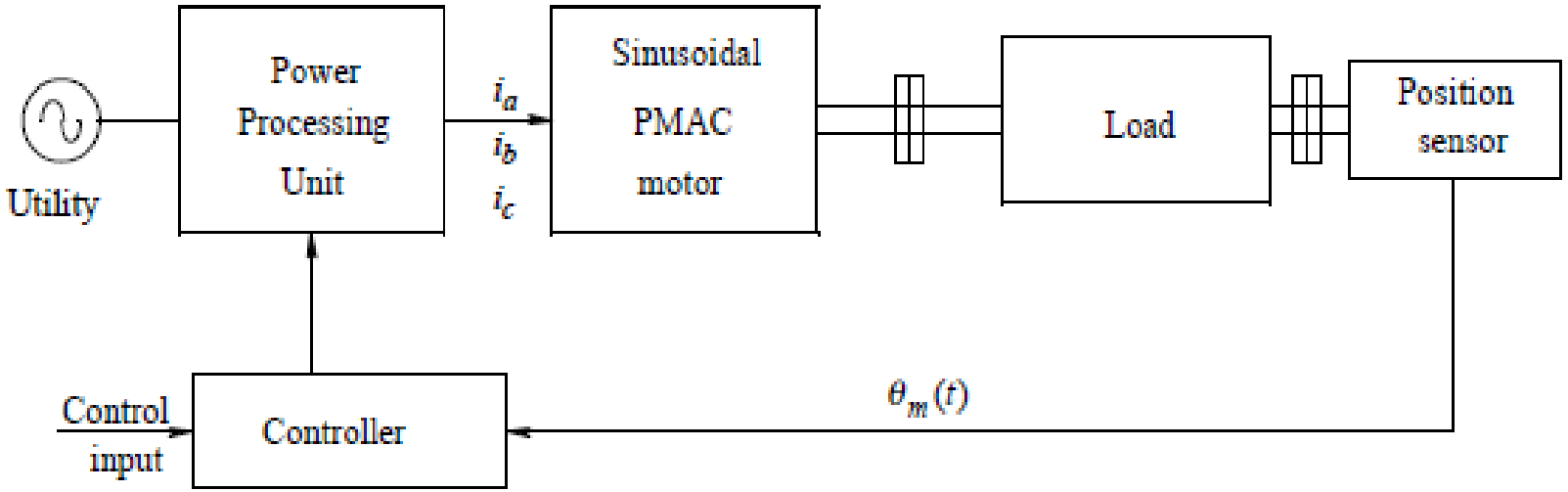
Special Electrical Machines

UNIT-IV
Permanent Magnet Machines

- Types of permanent magnets and their magnetization characteristics, demagnetizing effect, permanent magnet dc motors, sinusoidal PM ac motors, brushless dc motors and their important features and applications, PCB motors.

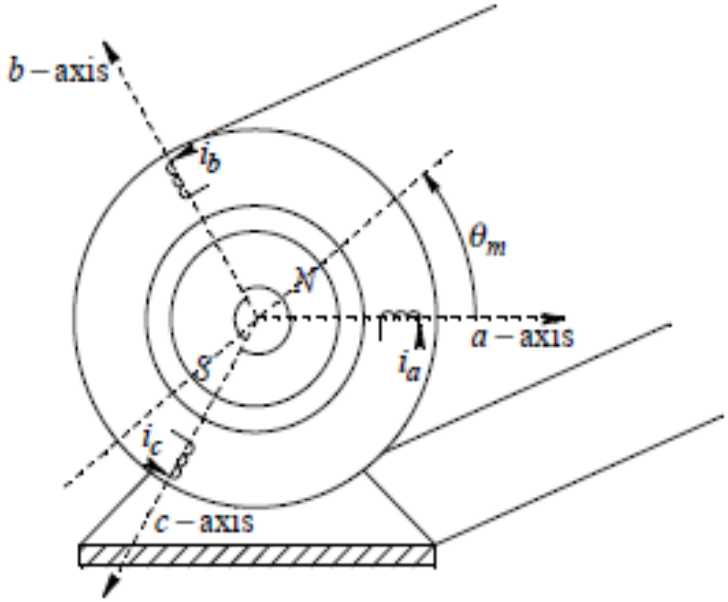
Sinusoidal PM ac motors

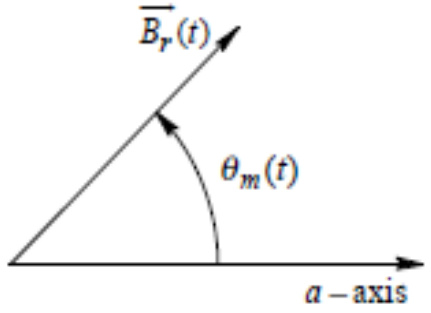
- Synchronous Motor whose field flux is provided by permanent magnets
- Operation is similar to DC machine without brushes



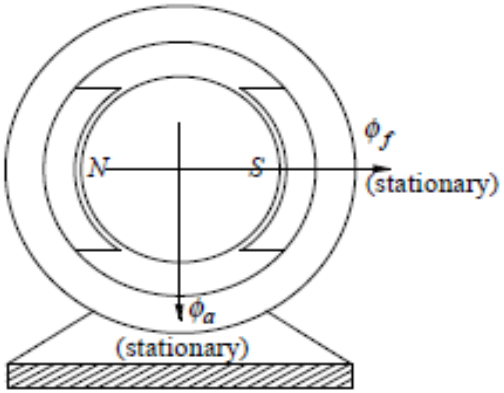
Structure of PMAC

- Distributed stator windings
- Permanent magnet rotor

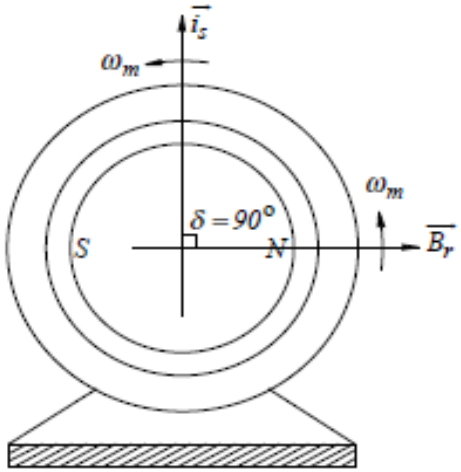




Similarity between DC motor ans Brushless DC motor



DC motor



Brush-Less DC motor drive

- Stationary ϕ_f produced by stator windings
- ϕ_a produced by rotating rotor windings and is made stationary by commutator action

- $\vec{B_r}$ produced by rotor magnets and rotates with the rotor
- $\vec{i_S}$ produced by stator winding currents and is made to rotate at rotor speed by the action of the PPU

THANKS….

Queries Please…