

# Modeling and Analysis of Dual Stator Windings Permanent Magnet Synchronous Motor

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## ABSTRACT:

The dynamic analysis of dual stator windings permanent magnet synchronous motor (DSWPMSM) with capacitor current injection into the auxiliary winding is presented in this paper. A mathematical model of the machine is proposed in order to study the performance of the motor with phase variable equations which were transformed to d- and q-axis rotor reference frame. Saturation effect is accounted for in the developed model. The model was simulated using MATLAB/Simulink. The electromagnetic torque of the model machine is enhanced which is compared with the conventional line-start interior permanent magnet synchronous motor (LSIPMSM) of the same size.

Keywords: Dual-stator winding; Line-start permanent magnet synchronous motor; Torque enhancement