

Advanced C-dump Circuit with Independent Control for SRM Drives

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201303017

Technology Summary

The invention relates to switched reluctance motors and more specifically to improvements to control circuit. In order to use SRMs in automotive traction drive systems, the parallel path magnet technology (PPMT) was developed. The PPMT motor is a hybrid of SRM and flux switching motor design. It features high pole-count, high phase number, and high stator current. Any overlap of motoring current into generator region results in strong braking torque, reducing the total output torque and generating extra copper loss. The new circuit can also be used for other SRM drives which require short demagnetizing time. The most important feature of the proposed circuit is it separates the phase winding freewheeling paths from the energy dumping path, which enables high dump capacitor voltage operation.

Inventor

TANG, LIXIN

Energy & Transportation Science Division

Licensing Contact

SIMS, DAVID L

Rm 124C, Bldg 4500N

1 Bethel Valley Road 6196

Oak Ridge, TN 37831

Office Phone: (865) 241-3808

E-Mail: SIMSDL@ORNL.GOV
