



Contribution ID: 306

Type: **Poster Presentation of 1h45m**

Proposed Commutation Method for Performance Improvement of Brushless DC Motor

Monday 28 August 2017 13:15 (1h 45m)

This study focused on efficiency improvement of BLDC motors via reduction of torque ripple, core loss, and permanent magnet loss. To achieve this objective, we proposed an improved 150° commutation method for three-phase permanent magnet brushless DC (BLDC) motors to improve the current waveform. Although the 120° commutation method is generally employed for a BLDC motor, the 150° commutation method is introduced in order to operate the BLDC with the same efficiency as a brushless AC (BLAC) motor. Moreover, an improved 150° commutation is proposed to reduce the phase current harmonics. The study investigates the attributes of different commutation methods analytically and experimentally in order to determine the optimal commutation method. The result of this study indicates that the improved 150° commutation method is optimum in terms of harmonic attributes, and reduced torque ripple, thereby improving the motor's efficiency.

Submitters Country

Republic of KOREA

Author: JIN, Chang-Sung (Hanwha Techwin)

Co-authors: CHO, Sooyoung (Hanyang University); LEE, Jae-Kwang (hanyang university)

Presenter: JIN, Chang-Sung (Hanwha Techwin)

Session Classification: Mon-Af-Po1.04

Track Classification: E1 - Motors