

15/09/2020

Dear Prof. Joseph O. Ojo

Editor-in-Chief of

IEEE Journal of Emerging and Selected Topics in Power Electronics

We would like to submit the enclosed manuscript entitled “Balancing of Common DC-Bus Parallel Connected Modular Inductive Power Transfer Systems” which we wish to be considered for publication in IEEE Journal of Emerging and Selected Topics in Power Electronics. The paper is an original piece of work and it has not been published in whole or in-part previously, and not under consideration for publication elsewhere.

The paper presents two novel current balancing methods for common DC-bus, parallel connected, modular inductive power transfer system. The system is aimed to be used as a contactless slip ring or replace conventional brush in electric motors. The analyses are performed for a single transmitter and two receiver wireless power transfer system. The system structure is modular and hence it is power scalable which results in a wide application area. The first novel method is the addition of receiver side cross-coupling where a more balanced receiver current distribution is obtained. The second method is adjusting the resonant frequency of the receiver side to either higher or lower frequencies. In conventional series-series topology, both resonant frequencies are adjusted to be the same. The current sharing improvements of both methods are derived analytically. The proposed methods are tested both separately and together using a 500 W test setup. An agreement with the analytical and experimental results was achieved.

The paper is composed according to IEEE journal submission format. No conflict of interest exists in the submission of this manuscript, and manuscript is approved by all authors for publication.

I appreciate your consideration of our manuscript, and I look forward to receiving comments from the reviewers.

Kind regards,

Ozan Keysan