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A brief review: Basic coil designs for inductive power transfer

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Abstract

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The inductive power transfer (IPT) has contributed to the fast growth of the electric vehicle (EV) market. The technology to recharge the EV battery has attracted the attention of many researchers and car manufacturers in developing green transportation. In IPT charging system, the coil design is indispensable in enhancing the EV battery charging process performance. This paper starts by describing the two charging techniques; static charging and dynamic charging before further presents the IPT system descriptions. Afterwards, this paper describes a brief review of coil designs which discusses the critical factors that affect the power transmission efficiency (PTE) including their basic designs, design concepts and features merits. The discussions on the basic coil designs for IPT are of the circular spiral coil (CSC), square coil (SC), rectangular coil (RC), and double-D coil (DDC). Furthermore, the significant advantages and limitations of each research on different geometries are analyzed and discussed in this paper. Finally, this paper evaluates some essential aspects that influence the coil geometry designs in practical.

SciVal Topic Prominence

Topic: Inductive Power Transmission | Charging (Batteries) | Electric Vehicles

Prominence percentile: 99.701

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