# A three-phase inductive power transfer system for roadway-powered vehicles

Roadway powered electric vehicles with minimal or no onboard energy storage have been proposed for many years, but the concept has only recently become feasible via three-phase inductive power ...

Abstract: This paper presents a distributed converter interface for the road-side infrastructure of dynamic inductive power transfer (IPT) systems for roadway-powered electric vehicles ...

A prototype system was constructed to verify the feasibility of the new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and people mover systems. ... Advances in Wireless Power Transfer Systems for Roadway-Powered Electric Vehicles.

The development of a new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and...

An in-road distributed Inductive Power Transfer system can be coupled to an EV to increase range, while a minimized battery capacity is used. The system dynamically charges ...

A Three-Phase Inductive Power Transfer System for Roadway-Powered Vehicles. G. Covic J ... A prototype system was constructed to verify the feasibility of the new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and people mover systems. Expand. 426.

Results from the power coupling study were used to aid in the design of the dynamic prototype, in which a fifty meter powered test track and electric car with power pickup will be tested. A Dual Mode Electric Transportation (DMET) system is under development in which energy is electromagnetically transferred from a powered roadway to moving vehicles without ...

The development of a new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and people mover systems is described. A prototype system was constructed to verify the feasibility of the design for a number of moving loads (toy cars). Here, 40 A/phase is supplied at 38.4 kHz to a ...

Magnetic design of a three-phase Inductive Power Transfer system for roadway powered Electric Vehicles Abstract: Inductive Power Transfer (IPT) is a viable method for recharging and ...

2 INDUCTIVE POWER TRANSFER SYSTEMS. ..., a three-phase bipolar pad achieved a transmission efficiency of 95% when transmitting 50 kW over a 150 mm airgap using a series compensation circuit. ... Integrating the dynamic charging system into vehicles and roadway infrastructure requires careful

coordination, standardization, and safety ...

Along with the technology boom regarding electric vehicles such as lithium-ion batteries, electric motors, and plug-in charging systems, inductive power transfer (IPT) systems have gained more attention from academia and ...

6 Roadway/online power transfer. The application of RIPT technology in public transit systems has been proposed in ... and the secondary is called as the pickup coil, which is in the vehicle. The system is supplied by a three phase AC system, or high voltage DC system. Considering both the short range of EVs and the associated cost of ...

The development of a new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and people mover systems is described. A prototype system was constructed to verify the feasibility of the design for a number of moving loads (toy cars). Here, 40 A/phase is supplied ...

The experimental results show that the magnetic coupling structure proposed in this paper can well solve the problem of system imbalance caused by interphase cross-coupling mutual inductance, and improve the power and efficiency of the system. Compared with the single-phase wireless power transfer systems, the three-phase wireless power transfer ...

The development of a new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and people ...

Roadway powered electric vehicles with minimal or no onboard energy storage have been proposed for many years, but the concept has only recently become feasible via three-phase inductive power transfer (IPT) systems. A wide zone can be created over which power transfer is relatively constant.

In traditional wireless power transfer (WPT) system, the output power and efficiency of the system decrease sharply when there is an angular misalignment between the transmitter and receiver. To solve this problem, this paper proposes an omnidirectional WPT system based on the tripolar pad to power up electronic devices, which can realize multiple ...

DOI: 10.1109/TIE.2007.904025 Corpus ID: 9896369; A Three-Phase Inductive Power Transfer System for Roadway-Powered Vehicles @article{Covic2007ATI, title={A Three-Phase Inductive Power Transfer System for Roadway-Powered Vehicles}, author={Grant Anthony Covic and John T. Boys and Michael L. G. Kissin and Howard G. Lu}, journal={IEEE Transactions on Industrial ...

Inductive power transfer (IPT) has progressed to be a power distribution system offering significant benefits in modern automation systems and particularly so in stringent environments. Here, the same technology may be

used in very dirty environments and in a clean room manufacture. This paper reviews the development of simple factory automation (FA) IPT ...

A Three-Phase Inductive Power Transfer System for Roadway-Powered Vehicles. G. Covic J. Boys M. Kissin Howard G. Lu. ... A prototype system was constructed to verify the feasibility of the new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and ...

A prototype system was constructed to verify the feasibility of the new three-phase bipolar inductive power transfer system that provides power across the entire width of a ...

The inductive power transfer (IPT) is performed over a transformer system formed by a linear array of primary coils embedded in the roadway and a secondary coil in every electric vehicle. Primary ...

Kim M., Ahn S., and Kim H.: "Magnetic design of a three-phase wireless power transfer system for EMF reduction". ... Buja G., Choi S.Y., et al: "Modern advances in wireless power transfer systems for roadway powered electric vehicles", IEEE ... "Automatic tuning concept for a three-phase inductive power transfer system". Proc. 2014 ...

Compared with the single-phase wireless power transfer systems, the three-phase wireless power transfer systems have the advantages of large transfer power, high position offset tolerance, and small output ripple, etc., which have been widely used for high-power application. For a three-phase rail-type dynamic wireless power transfer system, the interphase cross ...

The development of a new three-phase bipolar inductive power transfer system that provides power across the entire width of a roadway surface for automatic guided vehicles and people mover systems ...

IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, VOL. 56, NO. 7, JULY 2009 2393 Interphase Mutual Inductance in Polyphase Inductive Power Transfer Systems Michael L. G. Kissin, Member, IEEE, John T. Boys, and Grant A. Covic, Senior Member, IEEE Abstract--Roadway powered electric vehicles with minimal or no onboard energy storage ...

New cross-segmented power supply rails for roadway-powered electric vehicles are proposed in this paper for reducing construction cost and EMF. The proposed rail consists of two pairs of power cables, core, bidirectional power switches, a transformer, capacitors, and harness. Each rail is connected through a switch box, which can change the current direction ...

IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, VOL. 63, NO. 10, OCTOBER 2016 6533 Modern Advances in Wireless Power Transfer Systems for Roadway Powered Electric Vehicles Chunting Chris Mi, Fellow, IEEE, Giuseppe Buja, Life Fellow, IEEE, Su Y. Choi, Member, IEEE, and Chun T. Rim,

# A three-phase inductive power transfer system for roadway-powered vehicles

Senior Member, IEEE Abstract--Wireless power transfer system ...

This paper discusses the development of a new three phase bipolar inductively coupled power transfer (ICPT) system for improving the power profile across the width of a roadway surface for ...