

## Wireless Power Transfer Using Resonant Inductive Coupling

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### Wireless Power Transfer Using Resonant

Wireless power transfer is a novel technology and the theory is based on magnetic resonant circuit. The energy can be transferred via magnetic resonant circuit using non-radiative near field.

### Wireless Power Transmission via Magnetic Resonant Coupling ...

introduce wireless power transfer using resonant inductive coupling for 3DICs to increase power transfer efficiency and density with smaller coils. The paper is organized as follows; In Section II, we will discuss power transfer efficiency. The optimal condition and numerical analysis on maximum power transfer efficiency will be introduced.

### Wireless Power Transfer Using Resonant Inductive Coupling ...

energies Review An Overview of Resonant Circuits for Wireless Power Transfer Chaoqiang Jiang 1,\* , K. T. Chau 1, Chunhua Liu 2 and Christopher H. T. Lee 3 1 Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China; ktchau@eee.hku.hk 2 School of Energy and Environment, City University of Hong Kong, Hong Kong, China; chualiu@eee.hku.hk

### An Overview of Resonant Circuits for Wireless Power Transfer

Wireless Power and Data Transfer Using Inductively Resonant Coils Seth C. Raymond University of Maine Follow this and additional works at: <https://digitalcommons.library.umaine.edu/honors> Part of the Electrical and Computer Engineering Commons Recommended Citation

### Wireless Power and Data Transfer Using Inductively ...

We designed and tested a novel wireless power transfer system. This has two special designed single loop antenna and it can deliver several hundred watts wit...

### Wireless power transfer via inductive resonant coupling ...

Abstract: For a general multi-coil magnetic coupling wireless power transfer (MC-WPT) system with different coil properties and non-negligible cross couplings, there is no analytical solution that connects the resonant frequencies of the system to its electric parameters. Establishing such a generalized analytical solution not only permits quantitative analysis of resonant points but also ...

### Resonant Analysis of Magnetic Coupling Wireless Power ...

Wireless Power Transfer via Strongly Coupled Magnetic Resonances André Kurs, 1\* Aristeidis Karalis,2 Robert Moffatt, J. D. Joannopoulos, Peter Fisher,3 Marin Soljac'ic 1 Using self-resonant coils in a strongly coupled regime, we experimentally demonstrated efficient nonradiative power transfer over distances up to 8 times the radius of the ...

### Wireless Power Transfer via Strongly Coupled Magnetic ...

I am working on a four coil resonant-based wireless power transfer system. I saw many 3-D and 2-D diagrams which compare the primary factors of a transmission system.

### Can I simulate a WPT (wireless power transfer ) circuit ...

Wireless power transfer is a generic term for a number of different technologies for transmitting energy by means of electromagnetic fields. The technologies, listed in the table below, differ in the distance over which they can transfer power efficiently, whether the transmitter must be aimed (directed) at the receiver, and in the type of electromagnetic energy they use: time varying electric ...

### Wireless power transfer - Wikipedia

Wireless electric energy transfer for experimentally powering electric automobiles and buses is a higher power application (>10 kW) of resonant inductive energy transfer. High power levels are required for rapid recharging and high energy transfer efficiency is required both for operational economy and to avoid negative environmental impact of the system.

### Resonant Inductive coupling - Wikipedia

In this paper, the resonant coil is used in the design of wireless power transfer (WPT) to investigate the efficiency of the system. Conventional 2 coil WPT having problem in power transfer as the distance increase the PTE decreases.

### Wireless power transfer (WPT) optimization using resonant ...

(and therefore, this approach is sometimes referred to as "highly resonant" wireless energy transfer or "highly resonant" wireless power transfer (HR-WPT)). The MIT team demonstrated the highly resonant technique using a magnetic field to transfer energy over a mid-range distance of 2 meters, and an industry was born.

### Highly Resonant Wireless Power Transfer: Safe, Efficient ...

This book systematically describes a wireless power transfer technology that uses magnetic resonant coupling, and presents the latest theoretical and phenomenological approaches to its practical implementation, operation and its applications. It is a valuable resource for a broad readership.

### Wireless Power Transfer - Using Magnetic and Electric ...

Wireless power transfer (WPT) is the transmission of electrical power without wires and is based on technologies using time-varying electric, magnetic, or electromagnetic fields. WPT is useful to power electrical devices where are inconvenient, or not possible, as is the case of body embedded sensors, actuators, and communication devices.

### Wireless Power Transfer - an overview | ScienceDirect Topics

With the increasing usage of wireless charging for EVs, bidirectional resonant inverters for WPT based vehicle-to-grid systems are elaborated. Keywords: magnetic resonance; wireless power transfer; non-resonant converters; resonant inverters; compensation networks; selective resonant circuits

### An Overview of Resonant Circuits for Wireless Power Transfer

wireless power transfer (IWPT) and resonant wireless power transfer (RWPT). The IWPT mechanism uses electromagnetic induction technique for transferring the electrical energy wirelessly from ...

### Design and Analysis of Resonant Wireless Power Transfer System

Resonant wireless power transfer Abstract Our mobile devices are becoming more and more wireless. While data transfer of mobile devices is already wireless, charging is typically still performed with cables. Efficient and easy-to-use wireless

### Resonant wireless power transfer - Houser Electronics

In this chapter, a wireless power transmission system based on magnetic resonance coupling circuit was carried out. Mathematical expressions of optimal coupling coefficients were examined with the coupling model. Equivalent circuit parameters were calculated with Maxwell 3D software, and then, the equivalent circuit was solved using MATLAB technical computing software. The transfer efficiency ...

### Wireless Power Transfer by Using Magnetically Coupled ...

Improvements in performance of resonant coils are important for the range and efficiency of wireless power transfer (WPT); however, these improvements are difficult to measure using the conventional figure-of-merit (FoM), which is the product of quality factor and coupling factor. The conventional FoM does not account for important WPT system performance parameters such as coil size and range ...