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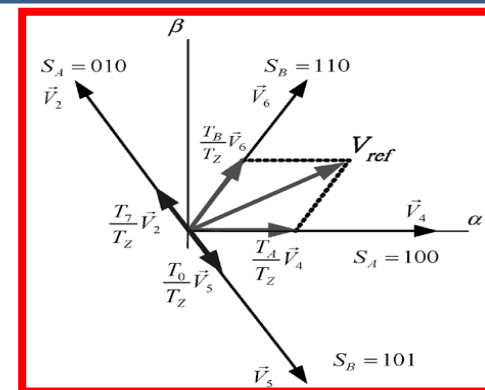
<http://www.ee.ntut.edu.tw/teacher/teacher2.php?tsn=7>

- 研究領域
  - 交流/直流轉換器 (含PFC)
  - 直流/直流轉換器 (含IT Applications)
  - 直流/交流轉換器 (含變頻器)
  - 馬達驅動器

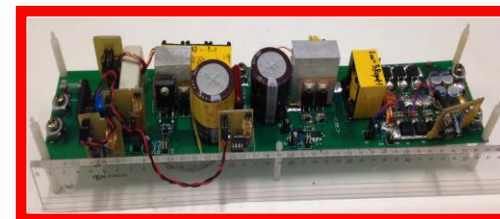
- 近期研究主題
  - 高效率伺服器電源轉換器
  - 數位控制諧振轉換器
  - 高頻寬伺服驅動器
  - 高速交流馬達驅動器

- Research Area
  - AC/DC Converter
  - DC/DC Converter , especially for IT Applications
  - DC/AC Converter (Inverter)
  - Motor Drives

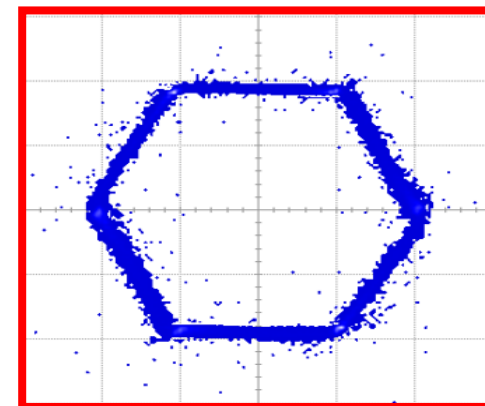
- Recent Topics
  - High Efficiency Server Power to meet the Platinum Efficiency Code
  - Digital Power based upon MCU and FPGA
  - High Bandwidth Servo Drives with Absolute Encoder for Automation Industry
  - High Speed AC Drives to Achieve Six Step Operation with Proposed Field Weakening Control Techniques



Voltage Vectors, the First Proposed PWM Method for Common-Mode Reduction



Designed High Efficiency Digital Server Power



Voltage Trajectory, Six-Step Operation with the Proposed Field Weakening Control Method

電機工程系  
Dept. of Electrical Engineering

老鷹實驗室  
Eagle Lab.

先進電力電子控制  
Advanced Power Electronics  
Control



胡國英 教授  
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■ 研究領域 電力電子

- 數位化電源
- 轉換器拓樸
- LED驅動

■ 近期研究主題

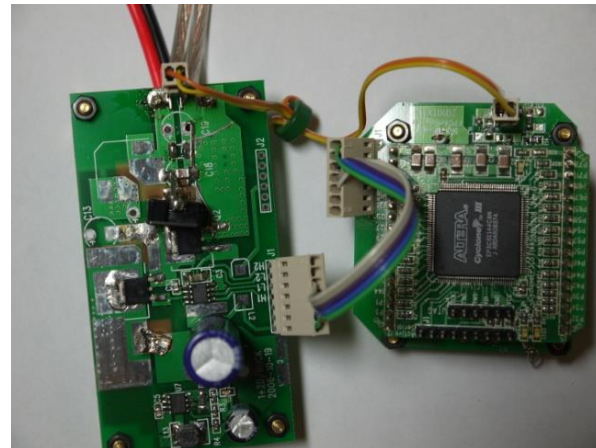
- 磁性元件應用
- 均流控制
- 功率因數修正控制
- 光伏轉換控制
- 熱電轉換控制

■ Research Area Power electronics

- Digital power supply
- Converter topology
- LED drive

■ Recent Topics

- Magnetic component application
- Current sharing control
- Power factor correction control
- Photovoltaic conversion control
- Thermoelectric conversion control



電路實體照片  
Photo of an experimental setup



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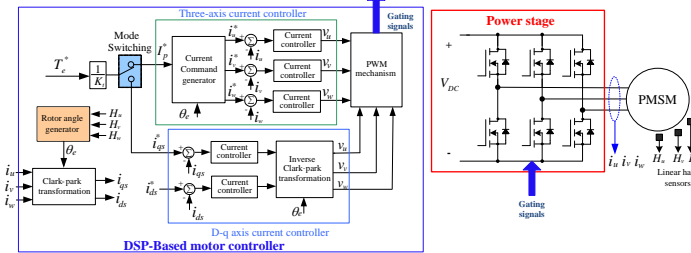
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- 研究領域
  - 馬達高效能控制
  - 轉換器設計
  - 電磁分析
- Research Area
  - High Performance Motor Control
  - Power Converter Design
  - Electro-magnetic Field Design and its Applications
- 近期研究
  - 輕型電動載具之馬達驅動控制
  - 燒機能量回收技術
  - 諧振轉換器建模與設計
  - 無線電力傳輸之電磁分析與控制器設計
- Recent Topics
  - Motor Drives Design for Light Electric Vehicles
  - Energy Recovery for Burn-IN System
  - Modeling and Controller Design for Resonant Converter
  - EM Analysis and Controller Design for Wireless Power Transfer System

DSP-Based Motor Drives for light EV applications

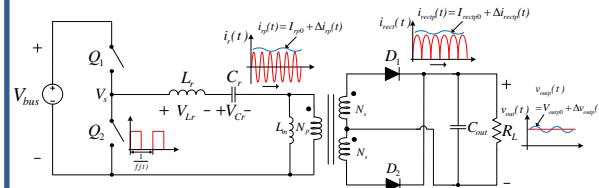


Electric Scooter

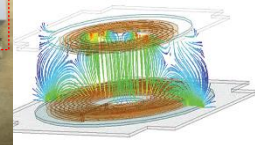
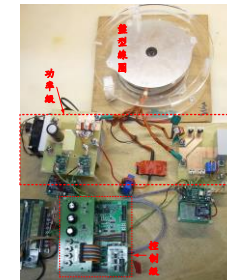
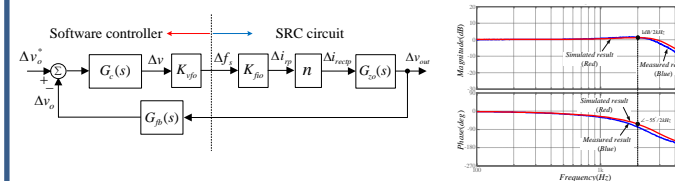


Electric Power Assisted Bicycle

Modeling and Controller Design for Resonant Converter



EM Analysis and Controller Design for Wireless Power Transfer System



電機工程系  
Dept. of Electrical Engineering

電源管理實驗室  
Power Management Lab.

電源管理積體電路、電力電子  
Power management integrated  
circuit, Power electronics



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■ 研究領域 電源管理積體電路、  
電力電子

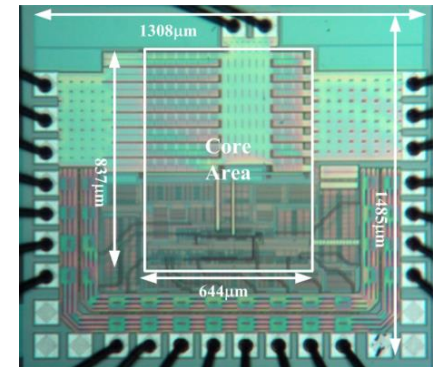
■ 近期研究主題

- 雙路徑頻率補償
- 電容放大技術
- 快速暫態響應
- 輕載效率改良
- 電流提升技術
- 發光二極管驅動器
- 電池充電器

■ Research Area Power management integrated circuit,  
Power Electronics

■ Recent Topics

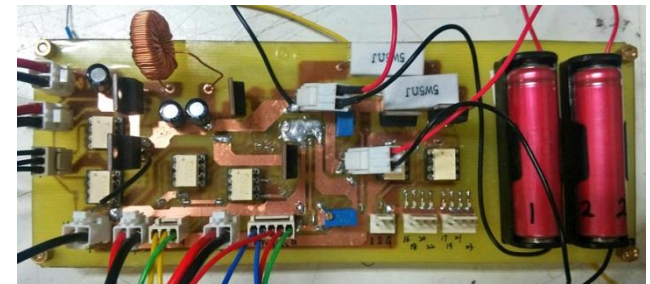
- Dual-Path Frequency Compensation
- Capacitor multiplier technique
- Fast transient response
- Light-load efficient improvement
- Current boosting technique
- LED driver
- Battery charger



晶片顯微圖  
Chip microphotograph



晶片測試電路版  
IC test PCB



電池充電器電路板  
PCB of battery charger

電機工程系  
Dept. of Electrical Engineering

電力電子應用與模擬研究室  
Power Electronics Application  
and Simulation Lab.

電力電子轉換器設計與分析  
Design and Analysis of Power  
Electronics Converters



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■ 研究領域 電力電子轉換器設計、  
LED驅動電路、感測電路  
設計、磁性元件分析

■ 近期研究主題

- AC/DC、DC/DC 轉換器  
分析與設計
- LED驅動電路設計
- 超音波感測電路設計
- 電力電子轉換器分析與  
模擬
- 磁性元件分析與模擬

■ Research Area

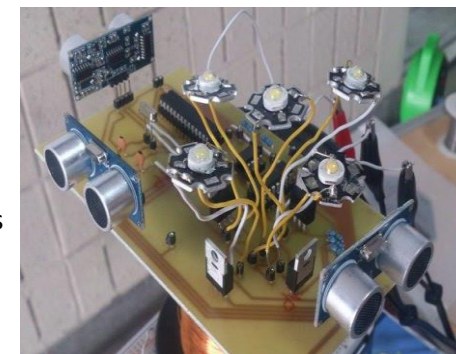
Power electronics converter design ,  
LED driver circuits, Ultrasonic sensor  
design, Magnetics component analysis

■ Recent Topics

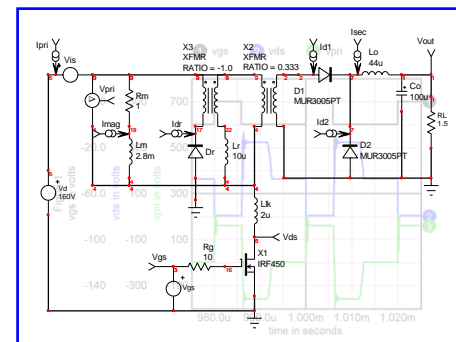
- AC-DC and DC-DC converter design  
and analysis
- Implementation of LED dimming  
circuit
- Ultrasonic sensor circuit in distance  
Measurement
- Simulation of power electronics  
converters
- Simulation and analysis of magnetic  
component



電力電子轉換器設計  
Power electronics converter design



超音波感測器之LED調光電路  
LED dimming circuit with  
ultrasonic sensors



電力電子轉換器電路模擬  
Simulation of power electronics circuits