

出席國際學術會議心得報告

一、參加會議經過

此會議於舉行時間為 2023 年 5 月 22 日至 5 月 25 日，地點位於韓國濟州，主辦單位為 KIPe (The Korean Institute of Power Electronics)，主題包括 Power Devices (Si / Wide band gap) and Application, Passive Components, Materials, Packaging, and Integration, Modeling, Simulation, and Control, Uncontrolled Rectifiers and AC/DC Converters, AC/AC Converters, DC/AC Inverters, DC/DC Converters, Multilevel Power Converters, Electric Machines, Actuators, and Sensors, Motor Control and Drives 等電力電子領域相關議題，本研討會之議程內容如下：

ICPE 2023-ECCE Asia

11th International Conference on Power Electronics-ECCE Asia
May 22~25, 2023 / ICC Jeju, Jeju, Korea

Time	May 22 (Mon.)	May 23 (Tue.)	May 24 (Wed.)	May 25 (Thu.)
08:30~09:00				
09:00~09:30	Tutorials	Oral Session I	Oral Session IV	Oral Session VII
09:30~10:00				
10:00~10:30		Coffee Break	Coffee Break	Coffee Break
10:30~11:00		Opening Ceremony	Plenary Talk III	Plenary Talk V
11:00~11:30				
11:30~12:00				
12:00~12:30		Plenary Talk I	Plenary Talk IV	Plenary Talk IV
12:30~13:00				
12:30~13:00	Lunch	Lunch	Lunch	
13:00~13:30				
13:30~14:00		Poster Session I	Poster Session II	
14:00~14:30		Oral Session II		
14:30~15:00	Tutorials	Coffee Break	Oral Session V	Oral Session VIII
15:00~15:30				
15:30~16:00		Oral Session III	Coffee Break	Coffee Break
16:00~16:30				
16:30~17:00				
17:00~17:30			Oral Session VI	Oral Session IX
17:30~18:00	Welcome Reception			
18:00~18:30				
18:30~19:00				
19:00~19:30				
19:30~20:00		Banquet	Night of Jeju	
20:00~20:30				
20:30~21:00				



ICPE 2023-ECCE

Asia

11th International Conference on Power Electronics - ECCE Asia

Green World with Power Electronics

May 22 (Mon.) ~ 25 (Thu.), 2023

ICC Jeju, Jeju, Korea

Call for Papers

The 11th International Conference on Power Electronics-ECCE Asia (ICPE 2023-ECCE Asia) will be held in May 22~25, 2023 at International Convention Center Jeju (ICC Jeju), Jeju, Korea.

ICPE 2023-ECCE Asia is organized by KIPE (The Korean Institute of Power Electronics), and co-sponsored by IEEE PELS (IEEE Power Electronics Society). Since our first conference in 1989, ICPE has grown into one of the most authoritative conferences while contributing to the continued advancement of power electronics technologies.

This conference will, once again, provide a variety of programs including distinguished presentations, networking events, and tours to benefit from many fruitful and enriching discussions as well as to initiate collaborations across disciplines for the advancement of your research.

We wish you all to participate in the ICPE 2023-ECCE Asia in Jeju, Korea.

Important Dates

- **Digest Submission (Extended Deadline) Nov. 21, 2022**
- Acceptance Notification Jan. 20, 2023
- Final Manuscript Submission Mar. 31, 2023

Topics

The topics will cover research and activities across all fields related to power electronics including, but not limited to, the following topics.

- Power Devices (Si / Wide band gap) and Applications
- Passive Components, Materials, Packaging, and Integration
- Modeling, Simulation, and Control
- Uncontrolled Rectifiers and AC/DC Converters
- AC/AC Converters
- DC/AC Inverters
- DC/DC Converters
- Multilevel Power Converters
- Electric Machines, Actuators, and Sensors
- Motor Control and Drives
- Sensorless and Sensor-Reduction Control
- Renewable Energy and Distributed Generation Systems
- Smart Grid and Microgrid
- DC Power Systems (HVDC, MVDC, LVDC)
- Energy Storage and Management Systems
- Power Electronics for Utility Interface
- Power Electronics for Transportation Electrification
- Wireless Power Transfer
- Reliability, Diagnosis, Prognosis, and Protection
- Big Data and Machine Learning Applications in Power Electronics Technology
- Other and Emerging Topics in Power Electronics

Organizer



Co-Sponsor



ECCE-Asia Cooperation



Technical Co-Sponsors



Digest Preparation

Digests must be original material and not have been previously presented or published. All materials should be electronically submitted in PDF file through the conference website no later than **Nov. 21, 2022**. Abstract should be within 500 words and be typed in the on-line system including paper title, list of authors, affiliations, and corresponding e-mail. Digest should be written in 4 pages at maximum, single column, single-space on A4 sized format including figures and tables. Digest should be headed by title of paper and choice of topic category. For the peer review, please do not indicate authors' name and references on the digest. Furthermore, all papers presented will be included in the IEEE Xplore. Sample Template and more detailed information can be found on our website at **www.icpe-conf.org**.

二、 與會心得

很感謝老師給我們這個難得的機會出國參加國際研討會，由於疫情已經過去，所以這次研討會舉辦的非常順利，主辦單位在大廳直接展示了兩台電動車，因此在參訪的過程中我特別注意電動車的相關議題，例如第二天的 plenary talk 中，任職於 Hyundai Motor Company 的 Jin-Hwan Jung 博士提到韓國電動車的馬達性能令我十分驚豔，且旅途中我觀察到濟州島上韓國品牌的汽車有相當高的市占率，因此我覺得台灣也應該加緊腳步研製新型電動車，以應對未來燃油車逐漸停產的趨勢。

三、 發表論文全文或摘要

此次發表的論文的題目為“A Frequency Multiplier Based Isometric Sampler for Second-Order Transfer Functions with Wide Frequency Variation Range”摘要如下：二階轉移函數轉換到離散系統時，共振頻率與轉移函數中的各項係數均有關，當輸入信號之頻率改變，欲使轉移函數適應頻率飄移，須修正轉移函數之各項係數，如此不但消耗計算資源且可能造成不穩定，然而觀察離散化的轉移函數，共振頻率與取樣時間有乘算關係，因此當輸入信號頻率改變時，只要改變取樣時間使共振頻率與取樣時間之乘積保持定值(等角取樣)即可使轉移函數具有寬廣之頻率適應能力。本論文採用兩種演算法產生等角取樣信號，第一種方案使用除頻器將高頻 clock 降頻至目標頻率，此法輸出精確但因缺少輸入週期的資訊，故除數需要逐步調整導致收斂較慢，方案二採用計算週期的方式達成倍頻，此法速度極快但輸出存在些許誤差，未來可以將兩種方案整合以增加準確度及縮短暫態時間。

四、 建議

此國際研討會每 4 年在韓國舉辦一次，目前已經累積 10 年的歷史(今年為第 11 年)，參與者包括各國的學者、教授、學生等，而我有幸能夠上台報告實屬一次難得的經驗，也讓我看到許多自己還有很大進步空間的地方，如英文能力等等。與會過程中，我也看到了現在電力電子領域的發展趨勢，以及一些新技術的應用，各國的講者們在演講及回答問題方面也都相當精闢、親切，此次參與研討會的經驗使我受益匪淺，希望有關單位可以多加鼓勵學生參與國際研討會，藉此增廣見聞同時提學生的研究實力。

五、 攜回資料名稱及內容

無

六、 其他

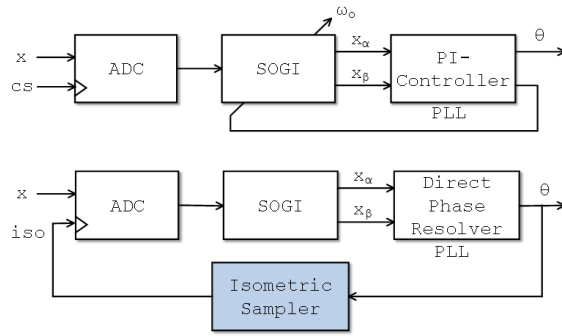
研討會報告照片及相關證明：

A Frequency Multiplier Based Isometric Sampler for Second-Order Transfer Functions with Wide Frequency Variation Range

Ying-Chun Chen(Presenter), Guan-Ling Chen, and Woei-Luen Chen

Department of Applied Physics and Chemistry, ElectroPhysics Group, University of Taipei, Taipei, Taiwan

Introduction



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[Th13] Modeling and Control of Converters III

Room I (402, 4F) May 25 (Thu.), 2023 / 4:55PM~6:35PM

Session Chair(s) **Wataru Kitagawa**
(Nagoya Institute of Technology, Japan)
Se-Kyo Chung (Gyeongsang National University, Korea)

4:55PM [Th13-1] Accurate State Space Resonators for the Implementation of Integral Dominant Voltage Controllers for LC Filter based Inverters

H. Siraj, B.P. McGrath, and I.U. Nutkani
RMIT University, Australia

5:20PM [Th13-2] A Simple Modulated Model Predictive Control of Single-Phase HERIC Active Power Filter

Dongmin Choi, Bonggook Kim, Sun Woo Rhee, Jinsu Kim, Jungyoung Lee, and Younghoon Cho
Konkuk University, Korea

5:45PM [Th13-3] A Study of 10 MHz Multi-Sampling SVPWM Method for Three Phase Inverter Using USPM Controller

S. Takeuchi, K. Sato, and T. Yokoyama
Tokyo Denki University, Japan

6:10PM [Th13-4] A Frequency Multiplier based Isometric Sampler for Second-Order Transfer Functions with Wide Frequency Variation Range

Ying-Chun Chen, Guan-Ling Chen, and Woei-Luen Chen
University of Taipei, Taiwan





