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地點：UK, Glasgow

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中文及英文摘要

本人此次參加了位於蘇格蘭格拉斯哥活動校園中心（SECC）（7月21日 - 7月26日）能源與環境電化學會議：生物電化學與儲能（ECEE 2019）。這是一場大型會議，重點關注電化學儲能材料及周邊元件研究，特別是針對電池的部分（與本人相關研究領域）。此外本人就研究上之固態鋰離子電池之潛在電解質材料進行了口頭報告，並與台下參與人員有良好的互動。透過此次口頭及張貼海報過程，本人多地了解各個實驗室的當前研究方向和結果。總結參與研討會對於本人及中心在各種工程和科學研究中，極具正面的影響，受益良多。

英文及英文摘要

I have attended the Electrochemical Conference on Energy and the Environment: Bioelectrochemistry and Energy Storage (ECEE 2019) at Scottish Event Campus Centre (SECC), Glasgow (July 21 – July 26). This is a big Conference, focusing on electrochemical energy storage materials, especially batteries (my research filed). I have given an oral presentation about the potential electrolyte material for solid Lithium-ion battery. Through the oral and poster sessions, I can understand more the current research directions and results of various laboratories. This conference is very helpful for me to motivated good research in various engineering and science research.
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I went to UK to attend the Electrochemical Conference on Energy and the Environment: Bioelectrochemistry and Energy Storage (ECEE 2019) (July 21 – July 26) at Scottish Event Campus Centre, Glasgow (Scotland's largest exhibition centre). This is a major Conference, focusing on electrochemical energy conversion/storage materials, concepts, and systems. The purpose for attending this conference is to enhance and update my knowledge related to battery field and to explore possible cooperation with the oversea researchers.

The outline of the itinerary is as follows:

- **July 20:** Arrive UK
- **July 21:** Conference registration is open
- **July 22:** There is one plenary session of Prof. Wolfgang Schuhmann from Ruhr-University Bochum then the technical session is divided into main parts: “Batteries and Energy Storage” and “Physical and Analytical Electrochemistry, Electrocatalysis, and Photoelectrochemistry”. Each of this will contain different topic with different schedules. I chosen “Batteries and Energy Storage”, particularly “A01-Lithium-ion Batteries: From the Design of New Electrode Materials and Electrolytes to the Performance and Recycling of Industrial Systems” and “A06-Metal Anodes meet Solid Electrolytes” since they relate to my research direction. Nowadays, the feverish scientific activity relating to the development of green
energy materials is in urgent due to the non-stop increasing of air pollution. Significant efforts on exploiting new materials for energy storages were reported for potential applications to solve the environmental and energy issues. Li-ion battery (LIB) is one of the most popular types of rechargeable batteries for portable electronics, battery electric vehicles and many other applications. It has attracted great attention due to the high energy density and long cycle life, compared with other chemical batteries.

There is Poster session and Welcome reception in the evening.

- **July 23-July 25:** There are oral sessions (including invited talks) at day and poster sessions in the evening. There are many oral sessions I would like to listen. I jump between the A01 and A06 Halls to full fill my interest. During the meeting, participants also had opportunity to meet the editors of ECS and discuss with them. We begin to get acquainted with other researchers and we talked about our studies. The current battery technology is nearing its limits. Further improvements with electrode and electrolyte materials for LIBs are what we are going to put a lot of effort on to satisfy the rapidly increasing demand.

During the time at Conference, I also met Prof. Kuan-Rong Fung and Dr. Jagabandhu Patra here, which are my colleagues at HiGEM Research Center, National Cheng Kung University.

- **July 26:** This day is the final day of the conference and only for oral presentations. My talk entitled “**Structural Optimization and Phase Stability of Cubic Li7La3Zr2O12 for Solid Electrolyte Application**” started at 8:40 am, in session “A06-Metal Anodes meet Solid Electrolytes”. I am happy since many people feel interesting with my talk. There are a couple of questions and comments after my talk and some other also came to discuss with me at tea time break. This will be very helpful for my future
research work.

- **July 27**: Take flights back to Taiwan.

心得及建議

This Conference is a good opportunity to bring together scientists, engineers, and researchers to share results and discuss issues. Attending the Conference not only helps me to enrich scientific knowledge in this batteries field but also inspires in certain new ideas for the near-future researches. Moreover, this is a great chance to make my study available to a wide international audience and brings potential collaborations with others. I hope Taiwan government could pay more effort on the Green Energy field, especially for rechargeable batteries, so that Taiwan could speed up the procedure for a clean environment in near future. Speaking myself, I have learned a lot through the Conferences, which could inspire me for new research ideas on batteries. This conference also provide opportunity for participants to meet and discuss with ECS Editors which can improve the way to submit papers.
- 附錄 (照片):

The delegate program booklet and nametag of the Conference from the ECS.

Email from ECS_I am selected as a raffle winner at the ECEE 2019 conference (two-year ECS membership)
Photo at the ECEE 2019 Conference

Photos with Prof. Ivo Tomandl from Nuclear Physics Institute, Czechia (left) and Dr. Jagabandhu Patra from HiGEM research Center.
Photo on my presentation day (July 26) outside of “A06-Metal Anodes meet Solid Electrolytes” session (It is not allowed to take photos inside the conference rooms of ECEE due to unpublished works).