

演題：**Designs of Polyvinyl Alcohol-Based
Gel Electrolytes for High-Rate,
Flexible Zinc-Air Batteries**

講師：**Prof. Chi-Chang Hu**
National Tsing Hua University,
Taiwan



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場所：工学部アカデミックラウンジ3

主催：北海道大学工学研究院フロンティア化学教育研究センター

共催：(公社)電気化学会北海道支部, (一社)表面技術協会北海道支部

要旨：

Due to the fast development of consumer electronics and wearable devices, demand for safe and light batteries is soaring. Flexible zinc-air batteries (FZABs) using quasi-solid gel polymer electrolytes (GPEs) are considered a potential candidate because of their high energy density, long-term durability and safety. In the first part, a simple method for preparing GPEs is reported to maintain a high water content within the gel, which is the key factor facilitating the high discharge rate of FZABs. Here the spinel NiCo_2O_4 is employed as the bifunctional catalyst for fabricating FZABs. Electrochemical measurements indicate a good bifunctionality for both the ORR and OER. In the second part of this contribution, a PVA-based GPE with a high water content (70%) and a bifunctional catalyst, $\text{Ru}_{0.6}\text{Sn}_{0.4}\text{O}_2$, are employed to fabricate the FZAB using the neutral electrolytes. In addition, the electrolyte formulations are systematically investigated in order to get improved zinc air battery performance.

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