

招 へ い 研 究 者 報 告 書

招へい研究者氏名	ポズナン工科大学 Fic KRZYSZTOF (フィッツ クシシュトフ)			
招 へ い 期 間	(西暦) 2024 年 4 月 15 日 ~ 2024 年 6 月 11 日			
受 入 機 関	先端科学技術推進機構			
受 入 担 当 者	所 属	化学生命工学部	資 格	教授
	氏 名	石川 正司		

講演会実績

○研究者向け講演会タイトル：

Interplay between electrode and electrolyte in electrochemical energy conversion and storage systems

○日時：2024 年 5 月 24 日 (金) 13:30-14:30 3402 教室

○概要：

The lecture aims at providing a recent review on the works about the role of the electrolyte in the electrochemical energy conversion and storage systems, with special focus on the in-situ and operando techniques (Raman spectroscopy, Quartz Crystal Microbalance (EQCM) or Scanning Electrochemical Microscopy (SECM), Electrochemical Dilatometry (ECD)) and their valuable role in the batteries and electrochemical capacitors development. Besides typical electrochemical techniques, certain combinations with physicochemical tests will be discussed.

Special attention will be devoted to the systems exploiting porous electrodes, with discussion on the adsorption techniques and further material characterization. The course will introduce to advantages and disadvantages of aqueous, organic and ionic liquid-based formulations, with special attention on their long-term performance.

○学生向け講演会タイトル：

Novel concepts for metal-ion capacitors and redox-active electrolytes

○日時：2024 年 5 月 13 日 (月) 13:00-14:00 2402 教室

○概要：

Hybrid electrochemical capacitors seems to become quite competitive devices to metal-ion based batteries nowadays. As they merge the high power of typical supercapacitors and high energy of the batteries, their application niche appears to be broad. Nevertheless, their assembly process is quite complicated and requires several steps. The recent findings indicate that one-step assembly became possible, but requires certain additive either to electrode material or electrolyte solution. The lecture will discuss both approaches and will provide comprehensive overview on the developments made in recent years. Systems based on Li⁻, Na⁻ and K⁻ions will be demonstrated and their performance elaborated.