Identifying Strategic Research Partners through Data-Driven Analysis of the Renewable Energy Technologies

Jehyun Lee[1], Yedam Kim[2], Jihoo Jung[1], Woonho Baek[1], Jae Kyoung Yoo[1], Sangjin Choi[1,*]

[1]Korea Institute of Energy Research, 152, Gajeong-ro, Daejeon, 34129, South Korea

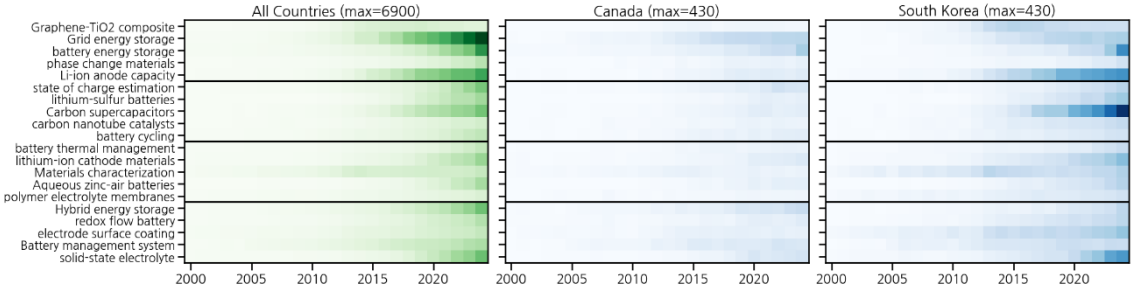
[2]Polytech Sorbonne, 4 Pl. Jussieu, Paris, 75005, France

*sjinchoi@kier.re.kr

International collaborations have been shown to yield better research outcomes than individual efforts. However, identifying and securing the right collaborative partners remains a significant challenge. This talk presents a data-driven approach to overcome this problem by leveraging topic modeling and bibliometric analysis to analyze research trends in photovoltic and battery technology.

We will demonstrate a methodology for mapping research interests and collaborative relationships, which help identify a potential collaborator's areas of expertise. By applying this technique to a large corpus of academic publications, we can pinpoint research themes by country and institution, providing a framework for analyzing their relative strengths and weaknesses.

This presentation aims to provide researchers with practical tools to navigate the academic landscape, select strategic partners, and foster meaningful collaborations in critical scientific fields. Ultimately, we will share key findings from our analysis of research patterns in photovoltaic and battery technologies, identifying leading countries, institutions, and emerging research topics.



Research trend of the battery sector by topics, in international (left), Canada (center), and South Korea (right)