2025

PSK-이녹스 신진연구자 웨비나

2025년 6월 11일(수) PM 15:00 - 17:00 | 온라인 상

https://korea-ac-kr.zoom.us/j/6188541924

주최 한국고분자학회 **주관** 분자전자 부문위원회 **후원** INNOX

○ 초대의 글

'PSK-이녹스 신진연구자 웨비나'는 우수한 연구역량을 가진 신진연구자를 발굴하여 교류의 장을 넓히고자 (주)이녹스의 후원과 한국고분자학회 주최로 마련한 온라인 세미나입니다. 이번 세미나에서는 고분자 분야 중에서도 특히 분자전자 소재 및 소자를 이용하여 선도연구를 수행하는 신진연구자의 우수한 연구성과를 공유하는 자리를 마련하였으니 관심있는 분들의 많은 참여 부탁드립니다.

○ 일정

PM 15:00 - 16:00	Transforming Reality Through Innovative Sensor Design Bridging Physical and Digital Systems Jaehyun Kim (김재현), jhkim14@etri.re.kr Reality Devices Research Division, Electronics and Telecommunications Research Institute
	ABSTRACT: Recent rapid development of AI, various tasks such as drawing, writing, and composing are now being successfully performed within digital systems. And recently, there has been a rapidly growing demand for 'physical AI' or 'bodied AI', the next step in AI that performs direct tasks in the physical world. To extend this advancement in AI from digital systems to real systems, the development of sensors that help AI explore and learn from real environments, as well as physical bodies such as robots, is essential. Sensors digitize physical and chemical information from the real world and convert it into a form that digital systems can understand. Early sensors focused on detecting basic, primary information such as pressure, temperature, strain, and chemicals, but recent advancements have enabled them to recognize more complex and sophisticated information such as vibration and slippage. In this presentation, we will introduce research on sensor design for digitizing various real-world information, and cover three areas of application: healthcare, robotics, and agriculture. First, in the healthcare field, we introduce a respiratory sensor that can monitor oral and nasal breathing by developing an array of breathable pressure sensors that can be attached to a mask. Second, in the field of robotics, we propose a sensor that improves grasping stability through a multimodal sensor design that can simultaneously detect pressure and strain. Finally, in the agricultural field, we cover technologies for monitoring plant health and growth using microneedle-based sensors that minimize the impact on plants.
PM 16:00 - 17:00	Design Strategies for High-performance Mechanoluminescent Platforms via Interfacial Engineering and Mechanistic Insights Hong In Jeong (정홍인), hij24@cam.ac.uk Department of Chemical Engineering and Biotechnology, University of Cambridge
	ABSTRACT: Mechanoluminescent (ML) platforms have emerged as a promising candidate for self-powered soft electronics and biomedical technologies. However, a limited understanding of the mechanistic principles governing the interaction between functional polymers and ML phosphors has hindered the broader use of diverse polymer matrices and delayed commercialization. Here, we propose a material-guided strategy for selecting elastic polymer matrices to achieve high-performance ML platforms. In particular, we reveal a comprehensive design framework based on interfacial triboelectric engineering, made possible by the intrinsic negative triboelectricity of polymers, along with a defect-localized ML model and a self-charging mechanism that ensures long-term stability. Our study offers new fundamental insights into the rational design of polymer-integrated ML systems and provides a potential breakthrough toward their next generation applications.

한국고분자학회
The Polymer Society of Korea