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강연제목: Application of Mass Transport in Micro-/Nanofluidic Devices toward Manipulation of Biosamples

Abstract:
In Bio-MEMS technology, detecting and manipulating targets (e.g., cells, pathogens) is crucial. To realize this, focus not only on the technology for fabricating micro/nanofluidic channels in a convenient- and high-throughput manner but also on the precise manipulation of mass transport, including diffusion, migration, and convection. In this regard, controlling mass transport within the channel is a critical technology that can significantly enhance the commercialization and practicality of these devices. This presentation will explore fabrication techniques and their applications within Bio-MEMS technology. It will discuss various methods for creating nanoporous membranes to ensure stable and precise mass transport control. By leveraging mass transport through these membranes, a range of Bio-MEMS applications can be achieved, such as particle separation, cellular culture and analysis, and energy conversion.

Brief Biosketch
Prof. Jongwan Lee received his doctoral degree in Mechanical Engineering from the UNIST in 2020. Before joining Kunsan National University as an assistant professor, he spent two years as a Visiting Scholar/Postdoctoral Associate in the Department of Mechanical Engineering at MIT under the supervision of Prof. Rohit Karnik. Prof. Jongwan Lee focuses on unconventional- and high-throughput fabrication of micro-/nanofluidic devices and the deployment of mass transport through them for applications in Bio-MEMS, Nano-/Bio Sensors, and Environmental Monitoring.