PSW12 : 유연소재연구회

PSW12-1 | Development and Fabrication of Combined Device with Blue LEDs and Graphene Electrodes for Neural Stimulation and Signal Recording in Optogenetics

PARK Jeongpil[1], *SONG Hyun Gyu[1]
[1]Korea Institute of Science and Technology

The fusion of optogenetics and electrocorticography allows for simultaneous control and recording of neural activity with precise targeting, following a programmable pattern. Current methods for illuminating the brain generally involve external light sources and optical fibers, which impose significant physical restrictions on natural behaviors. Additionally, delivering light onto cortical surfaces through recording tools containing opaque electrodes presents challenges. In this study, we address both issues by employing a fabrication technique that merges an array of mechanically flexible microscale optoelectronic devices with transparent graphene-based electrodes, facilitating minimally invasive cortical interaction. We validate the application of this integrated system, showcasing its potential for widespread utilization in research and future clinical optogenetic applications.