"Improving the reliability of implantable medical devices for neurological applications"

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Abstract

Developing chronically reliable implantable devices is an enormous challenge in biomedical engineering with significant economic and clinical implications. Soon after implantation, many devices often suffer from substantial performance degradation and premature failures due to various abiotic and biotic failure modes. Enabling technologies that improve the lifetime and reliability of these implantable devices can have an enormous impact on many debilitating chronic diseases that are difficult to diagnose and treat. In this presentation, I will discuss our latest efforts to utilize nano and microscale transducers to fabricate more reliable and smart implants and biosensors. As examples, I will share our latest efforts to develop a more reliable neurostimulation microelectrodes, self-clearing implantable shunts for intraventricular hemorrhage, and glutamate biosensors to enable neurodegeneration research.

Host: Dr. Jae Park