

Pulse Parameter Modulation for Electrical Stimulation

Track Code: 66303

Categories:

- Biomedical Engineering

Keywords:

- Biomedical Engineering
- Biosensors
- Digital Modulation
- Electrical Engineering
- Medical Devices
- Sensors
- Transducers

Purdue University researchers have developed a novel method of designing stimulus waveforms called Pulse Parameter Modulation (PPM). By pulsing the electric signal at the right rate the neurons respond the same way as they would to a continuous pulse with less impedance. This means that less power is needed to achieve the same effects, which will increase the lifespan of battery-powered implants and allows smaller stimulation electrodes with higher spacial locality. The pulsing can also be utilized to more selectively activate certain neuron populations (i.e. A, B, or C fibers) based on their activation levels and time constants.

Potential Applications:

- Biomedical Engineering / Biosensors
- Medical Devices
- Electrical Engineering / Digital Circuits
- Digital Modulation
- Sensors and Transducers

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