
TcSUH Special Seminar

Program Overview: Probe Development for Optogenetics

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Department, and TcSUH
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HSC 102 • 12:00 noon – 1:00 p.m.

ABSTRACT:

Optogenetics uses genetic manipulation to create light-sensitive neurons. Light flashes can then be used to stimulate or suppress electrical activity (spiking) in a targeted neuronal population with millisecond precision. There is now a critical need for integrated probes (*optrodes*) that can both deliver light and detect the spiking-response of the stimulated neurons. Our optrode designs incorporate a fine optical fiber with high-precision, thin film electrodes on its surface. The fiber substrate enables lossless light delivery for optical stimulation while the use of thin film conductors enables high electrode counts with essentially no increase in probe diameter. In this talk, I will discuss a simple, manufacturing process for 4-channel optrodes, its extension to 50-100 channel devices, and the fabrication of linear and 2-D probe arrays.

BIO:

Dr. Jack Wolfe received a Ph.D. in Physics at the University of Rochester in 1973. He holds a Hugh Roy and Lillie Cranz Cullen Distinguished University Professorship in the Electrical and Computer Engineering Department. His research interests include semiconductor processing, charge particle optics, and nanolithography.

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