Columbia Basin Section
ASQ Excellence Through Quality™

Invitation from
ASQ San Gabriel Section
October 20, 2021 Virtual Meeting

WE ACHIEVED HONORABLE MENTION IN 2020!
PERFORMANCE EXCELLENCE PROGRAM

DATE:

Wednesday,
October 20, 2021

This is a virtual/online meeting. Log-in information will be provided on the registration confirmation email.

Time:

6:00 PM – 7:30 PM PDT
(check website to confirm time)

Cost: Free for ASQ members and non-members

To register for this online/virtual meeting, click here.

Attendance at this meeting earns 0.5 RUs toward ASQ recertification.

NOTE: Be sure to use the same email address to join the meeting as you use when registering in order to receive the RUs. You must register for the event and join virtually to receive RUs.

For more information about the San Gabriel ASQ Section 0702, click here.

For more information about our local Columbia Basin ASQ section and future upcoming events: www.asq614.org/

Neural Science at the Micro and Nano Scales

William C. Tang, PhD

Professor of Biomedical Engineering, Electrical Engineering & Computer Science, Materials Science & Engineering

Neural implants are developed to interact with the nervous system in hopes of restoring sensory, motor, or cortical functions that can improve or maintain the health of individuals suffering from various forms of neural trauma or degeneration.

The major challenge of any *in vivo* devices is the natural immune responses to foreign bodies, which would render the device ineffective within months. Studying neuronal tissues cultured *in vitro* with microelectrode arrays offers an excellent alternative to ascertain neural network activities in a well-controlled environment that isolates and pinpoints a specific aspect of neuronal physiology. In particular, the hippocampus can be studied *in vitro* without the confounding complexity of the rest of the brain, allowing fundamental understanding of memory formation and retrieval at the cellular and subnetwork levels within the hippocampus. Complexity and sophistication of *in vitro* studies, particularly in 3D reconstruction of the neural network, can be progressively added to further expand our understanding of the central nervous system.

This presentation focuses on the tools to study neuronal tissues *in vitro* to understand neural network behaviors at the micro and nano scales.

About the speaker: William C. Tang received his BS, MS, and PhD degrees in Electrical Engineering and Computer Sciences from the University of California at Berkeley. His seminal thesis and invention of the electrostatic comb drive has been internationally recognized as one of the key building blocks of Micro-electromechanical Systems (MEMS) sensors and actuators, and is the most widely-cited work in the field for over two decades. Since his graduation, Dr. Tang contributed to the automotive industry at Ford Motor Company and space exploration at the Jet Propulsion Laboratory. He served as the DARPA Program Manager for various MEMS programs. In 2002, he was appointed Professor of Biomedical Engineering and Electrical Engineering & Computer Science at the University of California, Irvine. Later, he was also jointly appointed with the Chemical and Biomolecular Engineering and the Materials Science and Engineering Departments. The first Associate Dean for Research in the Henry Samueli School of Engineering from 2008 to 2013, Dr. Tang's research interests include micro- and nano-scale biomedical engineering, neural engineering, neuropathology and clinical applications. He is a Senior Member of the Institute of Electrical and Electronics Engineers, a Fellow and Chartered Physicist with the Institute of Physics, and a Fellow of the American Institute for Medical and Biological Engineering.