

BIOENGINEERING SEMINAR

FALL 2021

Targeting the Brain with Focused Ultrasound

Abstract

Focused ultrasound (FUS) is the only available technology that can noninvasively deliver external energy through the intact human skull deep into the brain and focus at any depth in the brain with millimeter spatial precision without ionizing radiation. The past decades witnessed the fast development of FUS technology. Recent FDA approval of high-intensity FUS for thermal ablation treatment of essential tremors marked the beginning of a new era for incisionless neuro-interventions. Building on the great promise of FUS technology and existing achievements, Dr. Chen and her team have been developing innovative FUS techniques to improve the diagnosis and treatment of brain cancer and advance the understanding of brain functions. This talk will cover the following three technologies: sonodelivery for brain cancer drug delivery, sonobiopsy for brain cancer diagnosis, and sonogenetics for noninvasive and cell type-specific neuromodulation.

Biography

Hong Chen is an Associate Professor of Biomedical Engineering and Radiation Oncology at Washington University in St. Louis (WashU). She earned her Ph.D. degree in Bioengineering from the University of Washington in 2011. She was a postdoctoral research scientist in the Department of Biomedical Engineering at Columbia University from 2012-2015. Since joining WashU in 2015, her research has focused on developing focused ultrasound techniques for the diagnosis and treatment of brain diseases and understanding brain function. Her research has been funded by NIH BRAIN Initiative, NIBIB, NIA, NIMH, NSF, DoD, and Charlie Teo Foundation. She has co-authored over 50 publications and received numerous awards, including the Frederic Lizzi Early Career Award from the International Society of Therapeutic Ultrasound, Chair's Award for Outstanding Teaching from WashU, Young Investigator Award at the International Symposium on Focused Ultrasound, R.W.B. Stephens Prize at the World Congress in Ultrasonics/Ultrasonics International. More information about her research can be found at <https://chenultrasoundlab.wustl.edu/>.



Hong Chen, PhD

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**Thursday, November 11
12:00-1:00 pm**

Join Zoom Meeting:

gmu.zoom.us/j/91001788853?pwd=enZXRXFneG1zdk5NN1VMSWtnQJJMUT09

Meeting ID: 910 0178 8853

Passcode: 229574