6th nanobiofluids seminar

October 25th 16:00-17:00

Venue: Seminar Room (Rm 127) 1st floor, Bldg No.1 of LiMe

https://www.infront.kyoto-u.ac.jp/en/access/

Zoom (registration) : https://kyoto-u-edu.zoom.us/meeting/register/tJMqcemhqDIpE9DG4bArmS-dtvcX-qqHjfaW

Prof. Shin Yoshizawa

Tohoku University, SONIRE Therapeutics

Ultrasound-guided focused ultrasound treatment using cavitation bubble - From elemental technology development to startup establishment -

Abstract

High-intensity focused ultrasound (HIFU) is a noninvasive treatment modality for tumors. Ultrasound generated outside a body is focused on the target tissue and the absorption of the HIFU energy in the focal region induces a temperature increase resulting in the thermal coagulation of the target tissue. Several HIFU treatment devices have received regulatory approval in Japan, but they have not become widespread. We have developed a HIFU treatment system with high safety and efficacy by using cavitation bubbles. Cavitation bubble clouds can be generated by an extremely high-intensity ultrasound pulse. Cavitation bubbles accelerate the ultrasonic tissue heating and also act as contrast agents in ultrasound imaging for the treatment monitoring. A clinical study using this approach was conducted in 2017 and a start-up company was established in 2020 with the aim of social implementation of this technology. The startup is currently conducting clinical trials in Japan for pancreatic cancer, and is preparing for clinical trials in the United States.

Biography

Shin Yoshizawa was born in Nagano, Japan, in 1977. He received the B.E. degree in industrial mechanical engineering, and the M.S.E. and Ph.D. degrees in mechanical engineering from The University of Tokyo, Tokyo, Japan, in 2000, 2002, and 2006, respectively. From 2007 to 2013, he was an Assistant Professor at Tohoku University. From 2013, he was an Associate Professor and from 2021,

he has been a Professor at the Department of Communications Engineering. He co-founded the start-up company SONIRE Therapeutics in 2020 and has been the CTO of SONIRE. His current research interests include high-intensity focused ultrasound, acoustic cavitation, and ultrasound imaging.

Host: Hirofumi Shintaku, shintaku@infront.kyoto-u.ac.jp