

Title **Recent Innovations in Micro Pulsating Heat Pipes for Heat Spreading**

Prof. Sung Jin Kim

Speaker Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology (KAIST)

Time& Date 3:00 PM(JST), Monday, June 12th, 2023



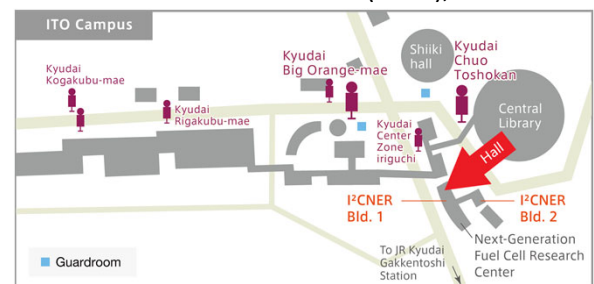
Venue Hybrid (I²CNER Hall, I²CNER Building 1, Ito Campus / Zoom Webinar)

Abstract

This talk is intended to provide a perspective and review of recent advances in micro pulsating heat pipes (MPHPs), which can be used as an effective heat spreader for heat generating devices of various shapes. MPHPs consist of liquid-vapor slug-train units oscillating within a serpentine microchannel with a hydraulic diameter of less than 1 mm. MPHPs have a width and length of 35 mm and 80 mm, respectively. They have the following characteristics: an effective thermal conductivity of 9,000 W/m·K, 5,000 times higher than the base materials, and a thickness of 1.5 mm. Compared to conventional pulsating heat pipes, MPHPs have interesting features like orientation independent performance and a wide operating range even under the local heating condition. In addition, several new ideas for thermal performance enhancement in MPHPs will be presented. This talk will conclude with an overview of ongoing research activities associated with a prestigious 9-year grant by Korea's Creative Research Initiative to develop Flexible and Thin Thermal Superconductors.

About the Speaker

Sung Jin Kim is a KEPCO-endowed chair professor in the Department of Mechanical Engineering at KAIST (Korea Advanced Institute of Science and Technology). He received a Ph.D. degree in mechanical engineering from the Ohio State University in 1989. Until joining KAIST in July 1997, he was a group leader of the Thermal Engineering Center at the IBM Laboratory in Tucson, Arizona for 8 years. His research group at KAIST held National Research Lab status for 5 years from 2006. From 2012 he was awarded a prestigious 9-year grant by Korea's Creative Research Initiative to develop Flexible and Thin Thermal Superconductors. He is an ASME Fellow (2005) and a member of Korean Academy of Science and Technology (2013). He has received National Medal of Science and Technology from Korean Government (2018), Scientific Achievement Award from KSME (2006), Grand Prize in Teaching Excellence (2012), Grand Prize in LINKGENESIS Best Teacher Award (2020), Grand Prize in Academic Excellence (2022) from KAIST, two Invention Achievement Awards and five Author Recognition Awards from IBM. He also served for 4 years as the president of Asian Union of Thermal Science and Engineering.



Registration <https://forms.office.com/r/11MwHBTdG6>

Host Prof. Masamichi Kohno

Contact I²CNER · Q-PIT Office of Research Support Services,
Research Support and Public Relations
TEL: +81 92 802-6935
Email: iq-kenkyu@jimu.kyushu-u.ac.jp

