

# KSUM 2026

THE 57<sup>TH</sup> ANNUAL CONGRESS OF  
THE KOREAN SOCIETY OF ULTRASOUND IN MEDICINE

MAY 7 (THU) - 8 (FRI), 2026 | COEX, SEOUL, KOREA



**Speaker :** Hyunjoo Jenny Lee

**Affiliation :** KAIST, School of Electrical Engineering

**Specialty :** Physics

**Lecture Title :** Ultrasound Patch for Biomedical Applications

**PT\_No. :** SF03-S2

This lecture will introduce the fundamental principles and emerging advances in microscale ultrasound transducer technologies for diagnostic applications. The talk will cover the operating mechanisms of major transducer types, including piezoelectric transducers, capacitive micromachined ultrasonic transducers (CMUTs), and emerging flexible acoustic devices. Their working principles, acoustic matching strategies, bandwidth considerations, and resolution limits will be discussed in the context of microscale fabrication approaches. Emphasis will be placed on device architecture, material selection, and microfabrication techniques that enable miniaturization while maintaining high sensitivity and wide bandwidth performance.

Building on these foundations, the lecture will focus on wearable and patch-type ultrasound implementations designed for continuous, noninvasive biomedical monitoring. Key challenges such as mechanical compliance, acoustic coupling stability, array distortion, and high-resolution imaging under flexible conditions will be addressed. Finally, potential biomedical applications such as continuous hemodynamic monitoring will be highlighted to illustrate how ultrasound patches may transition from conventional episodic imaging tools to next-generation wearable diagnostic and digital health platforms.