

Multi-modal Imaging: Photoacoustic Imaging Plus More

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Trans-energy imaging modalities have been significantly explored to overcome existing problems in conventional imaging modalities with respect to spatial/temporal resolutions, penetration depth, signal-to-noise ratio, contrast, and so on. Among them, photoacoustic imaging, an emerging hybrid modality that can provide strong endogenous and exogenous optical absorption contrasts with high ultrasonic spatial resolution, has overcome the fundamental depth limitation while keeping the spatial resolution. The image resolution, as well as the maximum imaging depth, is scalable with ultrasonic frequency within the reach of diffuse photons. In this presentation, the following topics will be discussed; (1) multiscale and multiparametric trans-energy imaging systems, (2) novel deep-learning powered image processing, (3) recent clinical study results in pathology, endocrinology, oncology, cardiology, dermatology, and radiology, (4) label-free ultrafast ultrasound Doppler imaging, and (5) efforts to commercialization.

Short Bio:



Dr. Chulhong Kim studied for his Ph.D. degree and postdoctoral training at Washington University in St. Louis. He currently holds Namgo Chair Professorship, Young Distinguished Professorship, and Mucunjae Chair Professorship of Convergence IT Engineering (Department Chair), Electrical Engineering, Mechanical Engineering, and Medical Science and Engineering (Program Chair) at Pohang University of

Science and Technology in Republic of Korea. He is also the Chief Executive Officer of Opticho Inc., a spinoff company to commercialize the preclinical and clinical photoacoustic imaging systems. His Google Scholar h-index and citations have reached 70 and over 18,000, respectively. He is a Fellow of the

IEEE, SPIE, and OPTICA.