

BIOPHOTONICS

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WEBINARS

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Low-Cost Compact Optical Spectroscopy and Novel Spectroscopic Algorithms

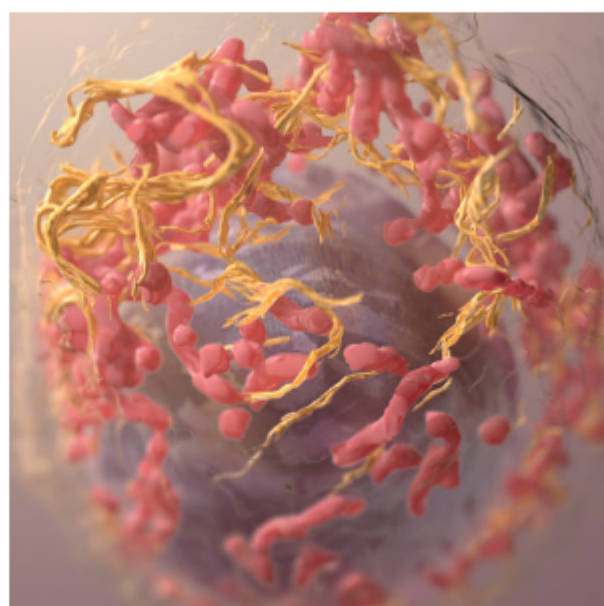
Thursday, December 8, 2022 2:00 PM - 3:00 PM EST

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.: About This Webinar

Real-time monitoring of nanoparticle delivery within biological models is essential for the optimization of nanoparticle-mediated therapies, but few techniques exist to conveniently monitor concentrations in tissue samples. Recent research, however, has reported novel optical spectroscopic approaches for low-cost, point-of-care, real-time quantification of nanoparticle concentrations in biological tissue samples.

Caigang Zhu, Ph.D., discusses a recently developed novel spectroscopic model with proper wavelength pairs that has been implemented with both a standard optical spectroscopy platform and a low-cost compact spectroscopy device. This model is utilized for the near real-time quantification of nanoparticle concentrations in biological tissue models. Both tissue-mimicking phantoms and ex vivo tissue sample studies show that these optical spectroscopic techniques can quantify concentrations in near real time with high accuracies of <5% error using a pair of narrow wavelengths. These techniques could potentially facilitate real-time monitoring of nanoparticle delivery in biological models using low-cost point-of-care optical spectroscopy platforms, which would significantly advance nanomedicine in cancer research.



Who should attend:

Engineers, manufacturers, and R&D scientists who are interested in or utilize optical spectroscopy or spectroscopic algorithms. Those whose work includes nanoparticle research or nanomedicine. Anyone who works with technologies such as imaging, microscopy, nanophotonics, and test and measurement in industries such as tissue modeling, cancer research, histopathology, biophotonics, and medicine.

About the presenter:

Caigang Zhu, Ph.D., is an assistant professor in the biomedical engineering department at the University of Kentucky. He received a bachelor's degree from the Huazhong University of Science and Technology in Wuhan, China, and a doctorate from Nanyang Technological University in Singapore. He did postdoctoral work at Duke University. Zhu's research program at the University of Kentucky focuses on developing and applying novel point-of-care optical spectroscopy and imaging techniques for various biomedical applications, including cancer research.

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