Can short-wave infrared hyperspectral technique replace exogenous contrast agents in optical imaging of biological tissue?

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Abstract - Optical imaging opened many opportunities in biology due to the high resolution of the method and relatively low cost of instrumentation. Analysis of the biological tissue, however, requires exogenous contrast agents. Hyperspectral imaging in short-wave infrared (SWIR-HS) is a new contrast mechanism that provides rich information about the relative abundance of individual endogenous chromophores and their interactions that contribute to the intensity and location of the optical signal. The presentation discusses the challenges in the SWIR-HS instrument design and data analysis and demonstrates some of the promising applications of this technology in life science and medicine.

Brief Bio – Dr. Mikhail Berezin is an Assistant Professor of Radiology at Washington University School of Medicine in St. Louis. He is also a Director of Optical Spectroscopy Core facility at Washington University. He graduated with PhD in Chemistry from Institute of Organic Chemistry and Oil and Gas Institute in Moscow and worked at Monsanto and Pfizer as a Research Scientist. He joined Washington University faculty in 2008. Dr. Berezin is focusing on novel mechanisms for optical imaging in medicine. His research interests lie in the design of contrast mechanisms with high specificities to a variety of diseases for diagnostics and image-guided treatments. He is a Senior Member of the International Society for Optics and Photonics. He published more than 50 peer-reviewed papers, several book chapters, holds five patents and edited a book in the field of imaging with contrast agents.