

TOWARDS QUANTUM BIO-SENSING AND BIO-IMAGING

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Abstract: The progress of biomedical sciences depends on the development of advanced tools and methods to enhance sensitivity, specificity, and spatial selectivity / spatial resolution of detection. Quantum sensing and imaging is a new frontier, which provides new opportunities for biomedical research with capabilities which are not yet seen through classical methods. In my talk, I will review the history of quantum sensing and imaging in general and for biological applications, in particular, and outline potential challenges and research strategies for future advancements.

Bio: Dr. Vladislav V. Yakovlev is a full professor in the Departments of Biomedical Engineering, Physics & Astronomy and Electrical and Computer Engineering at Texas A&M University. He got his PhD in 1990 from Moscow State University. He worked in the Department of Chemistry and Biochemistry at University of California, San Diego as a postdoctoral researcher and research scientist developing new tools for optical molecular spectroscopy, imaging, and sensing. Dr. Yakovlev started as an assistant professor at the University of Wisconsin – Milwaukee in 1998 and moved to Texas A&M University in 2011. He has more than 150 research publications in leading scientific journals. His research was supported by NSF, NIH, NASA, CPRIT, ARO, AFOSR, ONR, and DARPA. Dr. Yakovlev is a Fellow of Optica, AIMBE, APS and SPIE and a member of IEEE. He is a member of Editorial Board of Advanced Photonics, and Applied Sciences. His research interests are in a broad area of optical spectroscopy, imaging, and sensing. Dr. Yakovlev is a recipient of William E. Lamb Medal for Laser Physics and Quantum Optics (2015) and SPIE Harold E. Edgerton Award in High-Speed Optics (2021).