



Seeing life in a new light: from simple classical physics to quantum-enhanced imaging

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Virtual Option: [Zoom Link](#)

Host: Prof. Alexandra Boltasseva



The progress of biomedical sciences depends on the availability of advanced instrumentation and imaging tools capable of attaining the state of biological systems in vivo without using exogenous markers. Mechanical forces and local elasticity play a central role in understanding physical interactions in all living systems. We demonstrate a novel way to image microscopic viscoelastic properties of biological systems using Brillouin microspectroscopy [1]. In my talk, I will discuss the ways how an old spectroscopic tool can be used for real time microscopic imaging [2-3] and provide possible solutions to long standing problems in Life Sciences and Medicine [4-6] while advancing instrumentation beyond classical limits [7].

References:

- [1] Zh. Meng, A. Traverso, C. Ballmann, M. Troyanova-Wood, and V. V. Yakovlev, "Seeing cells in a new light: a renaissance of Brillouin spectroscopy," *Advances in Optics and Photonics* 8(2), 300-327 (2016).
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- [7] T Li, F Li, X Liu, VV Yakovlev, GS Agarwal, "Quantum-enhanced stimulated Brillouin scattering spectroscopy and imaging," *Optica* 9(8), 959-964 (2022)