

SEMINAR ANNOUNCEMENT

TUESDAY, 03.07.2018
14:15 h ZEMOS 0.17

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“Terahertz Light Fingerprints Biomolecular Dynamics”

20 years ago Grischkowsky and coworkers began a revolution in the terahertz (THz) optical range [1]. Zhang and others extended this new field so that measurements unimagined previously became accessible in table top systems [2]. An immediate effort began to determine intramolecular dynamics of biomacromolecules such as RNA's and proteins. This talk will discuss how THz polarization techniques can be used to both fingerprint specific biomolecules and reveal their biologically important changes [3-4]. I will also discuss challenges that must be addressed to fully realize THz light's impact on the biomedical community.

- [1] D. Grischkowsky and N. Katzenellenbogen, "Femtosecond Pulses of Terahertz Radiation: Physics and Applications," in OSA Proceedings on picosecond electronics and optoelectronics. vol. 9, T. C. L. Sollner and J. Shah, Eds., ed Washington, DC: OSA, 1991.
- [2] Q. Wu and X.-C. Zhang, "Free-space electro-optic sampling of terahertz beams," Appl. Phys. Lett., vol. 67, pp. 3523-3525, 1995.
- [3] K. A. Niessen, M. Y. Xu, A. Paciaroni, A. Orecchini, E. H. Snell, and A. G. Markelz, "Moving in the Right Direction: Protein Vibrational Steering Function," Biophysical Journal, vol. 112, pp. 933-942, Mar 2017.
- [4] G. Acbas, K. A. Niessen, E. H. Snell, and A. G. Markelz. (2014, 01/16/online). Optical measurements of long-range protein vibrations. Nature Communications [Article]. Available: <http://dx.doi.org/10.1038/ncomms4076>

Guests are very welcome!