

University of Pavia
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SEMINAR

New Advances in Diffuse Optical Spectroscopy and Imaging for Clinical Treatment Monitoring

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Boston, MA, USA

28 January 2021, 15:00

Webinar link:

<https://us02web.zoom.us/j/87238366367?pwd=MXZoV3l5M0xFYjZQc0NQMXFKTG50UT09>

Abstract: Despite an ever-increasing set of chemotherapeutic, targeted, and immunotherapies for patients suffering from cancer, individual responses to treatment remain highly variable. Standard-of-care imaging modalities (MRI, PET-CT, etc.) have limited ability to detect response and resistance early and often during treatment due to access, cost, and safety concerns. In order to move towards truly adaptive and personalized therapeutic regimens, near real-time in vivo measurements of key response metrics are needed. In this talk, I will discuss how label-free diffuse optical technologies are moving us towards real-time personalized therapy for cancer. I will also discuss the technological advancements my group is making to expand optical contrasts and access to patients. This includes the development of wearable probes, ultra-fast frequency domain diffuse optics, and short-wave infrared quantitative imaging. We are using these techniques in both the preclinical and clinical settings to interrogate the molecular, metabolic, and hemodynamic state of tumors in new ways, paving the way for a new set of non-invasive label-free optical imaging markers for treatment response monitoring in the clinic.

Bio: Darren Roblyer is an Associate Professor of Biomedical Engineering at Boston University. He develops label-free optical techniques to interrogate tissue physiology, metabolism, and structure over broad spatial scales. He is focused on pushing the limits of treatment prediction using novel optical signatures in cancer and other human pathologies. His lab has a particular focus in frequency-domain Diffuse Optical Spectroscopy and multiphoton imaging. He is a recent recipient of the National Institutes of Health Trailblazer Award, and has previously received the American Cancer Society Research Scholar Award and Department of Defense Era of Hope Breast Cancer Research Award.

Dr. Roblyer received his B.S. degree in Biomedical Engineering from Johns Hopkins University in 2004, and received his Ph.D. in Bioengineering at Rice University in 2009. He did his postdoctoral work at the Beckman Laser Institute at the University of California, Irvine.

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Seminar in English

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