



## Photonics Forum

*October 25, 2017*

*11:45 a.m. -  
1:15 p.m.*

*9th Floor*

*Room 901*

*Photonics Center*

*8 Saint Mary's Street*

*Lunch will be served!*

## Dr. Jeffrey D. Peterson, PerkinElmer

### **In vivo Imaging of Cancer, Inflammation, and Toxicology Using NIR Fluorescent Imaging Agents**

Animal models can be critical for understanding the pathophysiology and progression of diseases and conditions as well as for characterizing biological effects of new therapies. Fluorescence imaging offers a unique approach to the non-invasive quantification of tissue biological changes by using targeted bioprobes bearing fluorescent reporters. Dr. Peterson has used a variety of near infrared (NIR) fluorescent imaging probes and fluorescent tags, in combination with 2D or 3D fluorescence imaging (IVIS Spectrum and FMT4000), for the non-invasive quantitative imaging of a variety of mouse models, including whole body biodistribution, pulmonary inflammation, cancer, tumor metabolism, arthritis, atherosclerosis, acute inflammation, and cell tracking. These studies have shown the ability to non-invasively quantify important changes in disease biology earlier and/or more accurately and in agreement with the underlying histopathology. In more recent studies, he has been able to detect biological changes in the liver, kidney, and other tissues, induced by a single bolus drug dose, that accurately predict drug-induced tissue injury. Often his readily-detected changes by imaging precede overt physical or histological changes, offering unparalleled sensitivity for the detection of potential drug liabilities.



Dr. Jeffrey D. Peterson is currently the Director of Applied Biology at PerkinElmer Life Sciences and Technology in Hopkinton, Massachusetts. He has a Ph.D. in Immunology and Neuroscience and spent several years researching a variety of autoimmune diseases, including multiple sclerosis and Type I diabetes. He subsequently spent ten years in the Pharmaceutical and Biotech industry as a Pharmacology researcher and Director, working to discover novel drugs, therapies, and biomarkers at companies such as Boehringer Ingelheim and Curagen Corporation. He has worked for the past 11 years in in vivo optical imaging, developing novel imaging agents and pushing the limits of what can be achieved in fluorescence imaging.



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