



Society of Applied Spectroscopy  
New England Section

### October Meeting Announcement

When: Wednesday October 18, 2017  
6:00 – 7:00 Social Hour  
7:00 – 8:00 Presentation & Discussion  
8:00 – 9:00 Dinner

Where: **Cambridge Innovation Center, Venture Café Kendall  
1 Broadway, 5th Floor, Havana Room  
Cambridge, MA 02142**  
Here is a Google Maps [link](#).

Speaker: Dr. Bryan Spring  
Assistant Professor  
Department of Physics  
Northeastern University

Title: **New optical approaches to identification and selective treatment of cancer**

#### Abstract:

Molecular-targeted, activatable probes are emerging for optical biopsy of cancer. An unexplored potential clinical use of this approach is to monitor and treat residual cancer micrometastases that escape surgery and chemotherapy. This talk will introduce a new platform for activatable phototherapy and in vivo imaging of residual metastases that enables high-fidelity imaging and treatment of cancer cells. Optically active nanomaterials—that use light as both a drug release mechanism and as a cytotoxic modality—are an emerging component of this approach and will also be introduced.

#### Speaker Biography:

Dr. Bryan Q. Spring is an assistant prof. in Northeastern University. His lab utilizes optical spectroscopic imaging and photophysics to visualize and selectively target micrometastases left behind by standard therapies that limit our ability to cure many cancers.

The ultimate goal of Dr. Spring's work is to reduce cancer recurrence and mortality by establishing new approaches for personalized medicine that address tumor heterogeneity, drug-resistance and molecular mechanisms of treatment escape. Advanced-stage cancer patients are presently subjected to a grueling treatment regimen consisting of surgical tumor debulking and high-dose-intensity chemotherapy. These standard approaches frequently hit a wall due to dose-limiting toxicities as well as mechanisms of drug-resistance and treatment escape via cell signaling networks. To address these challenges, Dr. Spring's

efforts focus on developments in photomedicine in concert with guidance from in vivo microscopy for the discovery of dynamic molecular mechanisms of treatment escape and for the rational design of therapeutic regimens that overcome resistance.

A major focus of Dr. Spring's lab is to develop multicolor in vivo microendoscopy and molecular-targeted agents for both imaging and therapy. The group builds new fluorescence microendoscopy tools (e.g., hyperspectral, lifetime-resolved and FRET imaging); develops real-time image analysis software; designs and synthesizes molecular-targeted probes; and, develops mouse models of cancer.

Dr. Spring received a B.S. in Physics from Iowa State University in 2002, a Ph.D. in Biophysics and Computational Biology from the University of Illinois at Urbana-Champaign in 2008 and conducted his postdoctoral research at Harvard Medical School and Massachusetts General Hospital. His doctoral work with Robert M. Clegg focused on developing video-rate fluorescence lifetime imaging and quantitative measurements of Förster resonance energy transfer. His postdoctoral research focused on new optical techniques and targeted therapies for pancreatic and ovarian cancer.

**Dinner Details:** Attendees are encouraged to join the speaker after the conclusion of the talk. Everyone will be ordering and paying for their own meals.

**Cost:** SAS Members \$5; non-members \$7; full time students and unemployed members \$5. Please try to have a check or exact change.

**Contact:** Due to capacity seating limitations, an RSVP is suggested. Please contact Vincent Lee at [vincentlee@nesas.org](mailto:vincentlee@nesas.org) if you have questions.