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## Spectrally resolved imaging: the power of color contrast in medicine and beyond

Metastasis is responsible for 90% of cancer-related deaths. An emerging approach for early detection of systemic metastasis uses the concept of a "premetastatic niche" to attract metastatic cancer cells to a polymer scaffold that is implanted beneath the skin, where it can be sampled or monitored non-invasively. I will review work conducted to tailor an extension of spectroscopic optical coherence tomography (SOCT), termed inverse spectroscopic OCT (ISOCT), to image this scaffold implant for metastatic monitoring in mouse models. I will also discuss SOCT more broadly and its potential applications for coral reef monitoring and beyond. Finally, I will review efforts to improve cancer surveillance in the upper GI tract by optimizing the spectral contrast early lesions using hyperspectral endoscopy. of

## Graham Spicer, Ph.D.



Senior Scientist, The Johns Hopkins University Applied Physics Laboratory

Graham Spicer received his BS degrees in Physics and Chemical Engineering in 2013 from Carnegie Mellon University in Pittsburgh, PA and a PhD in Chemical Engineering in 2019 from Northwestern University in Evanston, IL. After graduation, he completed postdoctoral fellowships at Harvard Medical School (2019-2021) and the Cavendish Laboratory at the University of Cambridge (2021-2023) before starting his current role as an Optical Scientist at the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. His research interests center around the development of coherent optical techniques to improve human health.

September 5, 2024 • 3:30 p.m. Location: 111 Rhodes Annex, Clemson University and https://clemson.zoom.us/j/95657398168

