



**You are cordially invited to attend the  
Plants3D 2<sup>nd</sup> Friday of the month seminar  
– February 2024 –**

**Dr. Gregory Lowry**  
Carnegie Mellon University



## **Exploring plant-nanomaterial interactions using microscopy and spectroscopy**

**Date: Friday, February 9<sup>th</sup>**

**Time: 12:00 - 1:00 pm**

**Location: Genomics Auditorium**

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**Coffee and tea at 11:30am**

**Abstract:** Engineered nanomaterials (ENMs) and nanocarriers (NC) hold great promise for improving the efficiency of delivery of agrochemicals and for mitigating the impacts of climate change on crop productivity. While many studies have demonstrated the benefits of the approach, fundamental knowledge about how ENM and NC properties affect their uptake, translocation, and fate in plants is still lacking. Synchrotron-based methods, especially synchrotron X-ray fluorescence (XRF) mapping and XANES mapping are one of the few tools that can be used to spatially resolve ENMs and NCs in plant tissues and monitor any transformations they undergo in vivo. This session will present applications of these tools to multiple scenarios including nanomaterial root interactions, nanomaterial-leaf interactions, and nanomaterial translocation studies. The goal of this talk is to familiarize participants with capabilities and limitations of applying these methods for tracking nanomaterials and their transformations in plants.