

From Root Tip to Shoot Tip: Exploring Metal Distribution and Speciation in Plant Tissues

David McNear Jr.
Department of Plant and Soil Sciences
University of Kentucky

This talk will focus on the use of multiple complimentary techniques (including synchrotron-based methods) to investigate the physical, biochemical and genetic mechanisms involved in metal uptake and storage in specialized metal hyperaccumulating plants. First, the role insect feeding pressure played in the evolution of metal hyperaccumulating plants will be discussed by examining the interaction between the Zn hyperaccumulator *N. caerulea* and generalist insect herbivores. To follow will be a brief discussion on other examples of metal hyperaccumulators including the response of *S. vulgaris* to Cr(III) and Cr(VI) exposure. The talk will conclude with a discussion on how plant sample preparation for synchrotron-based analyses (e.g. SXRF, tomography) influences cell structure, integrity and ultimately metal distribution and speciation.