

Wednesday, 27<sup>th</sup> Jan 2021, 16:15 h,  
*Zoom Meeting – Access via StudIP*

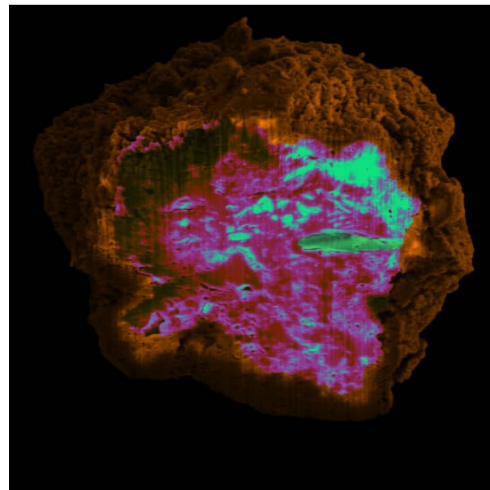
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**Prof. Dr. Johannes Lehmann**

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**Soil organic carbon: from recalcitrance to systems thinking**

Soil harbor more organic carbon than the atmosphere and biosphere combined. That makes small proportional changes in soil organic carbon important for global climate. Over the past couple of centuries, humification stood as the main explanation for the persistence of soil organic carbon. Only in the last two decades, evidence is mounting that contradicts the notion of the formation of recalcitrant humic substances. Rather, interactions with minerals and aggregation has been proffered as an explanation for soil organic carbon persistence. New evidence points towards functional complexity as a suitable way to conceptualize soil organic carbon dynamics that also includes interactions between organic phases rather than ordered gradients on mineral interfaces. This presentation will discuss the historic development and recent evidence, spanning observations from near-atomic scale to global-scale modeling.



Johannes Lehmann, Liberty Hyde Bailey professor of soil biogeochemistry and soil fertility management at Cornell University, received his graduate degrees in Soil Science at the University of Bayreuth, Germany. During the past 20 years, he has focused on nano-scale investigations of soil organic matter, the biogeochemistry of pyrogenic carbon in soil and sustainable landuse. His interests span from investigating forms of organic carbon and nutrients to stabilization and global cycles that inform approaches to climate mitigation and circular economy. Dr. Lehmann is a member of the steering group of the International Soil Carbon Network, has testified in the US congress, and briefed the President's council of advisors. Dr. Lehmann has authored more than 200 journal publications, was named Highly-Cited Researcher by Thomson Reuter, is member of the German National Academy of Sciences (Leopoldina) and Fellow of the Soil Science Society of America, he was named Hans-Fischer Senior Fellow of the Institute of Advanced Studies at the Technical University of Munich, and serves as editor-in-chief of the journal Nutrient Cycling in Agroecosystems.