

## Dept. of Biological Sciences Seminar Series



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# Molecular Biogeochemistry of Soil Organic Matter

Current soil biogeochemical (SBGC) models treat mineralization of microbial substrates as a first-order kinetic process. When the highly parameterized SBGC models are coupled to models of land-ecosystem exchange, they are unable to accurately simulate episodic emissions of biogenic trace gases like nitric oxide (NO), nitrous oxide (N<sub>2</sub>O), and carbon dioxide (CO<sub>2</sub>) from soil surfaces. Current SBGC models treat soil organic matter (SOM), which is an important carbon source for heterotrophs, as 3 non-specific fractions that are operationally defined by analytical methodology. However, SOM is a complex mixture of thousands of organic substances that are processed by molecular-specific, microbial enzymes in second-order kinetic processes. Results will be presented from field investigations of the production of N<sub>2</sub>O in an agricultural soil following a simulated rainfall and the seasonal diagenesis of OM in a poor fen.

**Thursday, 30<sup>th</sup> January 2020**  
**3:00 –4:00 PM GLRC 202**

For more information, visit <https://www.mtu.edu/biological/>



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