



Two Nonlinear Soil Carbon Models

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Commonwealth Scientific and Industrial Research Organisation (CSIRO)

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Time: 11:00 am

Venue: Conference Room, 3/F, Mong Man Wai Building

Registration: [Click Here](#)

Abstract Conventional soil models assume that decomposition of litter or soil carbon is proportional to its pool size without explicitly including soil microbial activities, and cannot predict the range of the observed responses of soil carbon to warming or an increased carbon input. As a result, a number of nonlinear microbial models of soil carbon decomposition have been developed, some of them have been applied globally. In this talk, I will present a mathematical analysis of two nonlinear microbial models of soil carbon decomposition: one is based on the reverse Michaelis-Menten kinetics and the other on Michaelis-Menten kinetics. I will focus on their oscillatory responses to a small perturbation, responses to soil warming and litter addition. Finally I will outline a set of experimental observations needed for assessing which model can represent soil carbon dynamics better in the real world.

Speaker Dr Ying-Ping Wang completed his PhD in plant ecophysiology from the Department of Forestry and Natural Resources, University of Edinburgh in 1988, and moved to CSIRO, Australia in 1990. He currently is a chief research scientist and team leader of land surface modelling in CSIRO. He is one of key scientists for developing the Australian community land surface model (CABLE) that is being used by over 30 different institutions outside Australia. He has published 6 papers in Nature, Nature Climate Change, Science and PNAS. His main research interests are land surface modelling, biogeochemical cycles, land-atmosphere interaction and model-data fusion.

~ All are Welcome! ~