iFAST: The International Forum on Advanced Environmental Sciences and Technology

A series of distinguished seminars by eminent scientists

7 p.m. CST; 8 p.m. EST; Nov. 18, 1 a.m. GMT; 9 a.m. Beijing

Wednesday, Nov. 17, 2021

Dianne Newman

CALIFORNIA INSTITUTE OF TECHNOLOGY

https://www.bbe.caltech.edu/people/dianne-k-newman

D. Newman's research focuses on microbial stress responses, with an emphasis on mechanisms of energy conservation and survival when oxygen is scarce. The contexts that motivate her research span chronic human infections to the rhizosphere yet are linked by similar physiological questions. Newman earned her doctoral degree in environmental engineering at Massachusetts Institute of Technology with Francois Morel, a geochemist, and trained as a postdoc at Harvard Medical School with Roberto Kolter, a bacterial geneticist. She joined the Caltech faculty in 2000 as the Clare Boothe Luce assistant professor of geobiology and environmental science. From 2007-2010 she was the Wilson professor of biology and geobiology at Massachusetts Institute of Technology, and from 2005-2016 a Howard Hughes Medical Institute investigator. Since 2016 she has been the Gordon M. Binder/Amgen professor of biology and geobiology at Caltech. Her honors include the National Academy of Science's Award in Molecular Biology for her "discovery of microbial mechanisms underlying geologic processes" and a MacArthur Fellowship, but she is most proud of her trainees, who have gone on to lead successful scientific careers of their own. Newman is a Fellow of the American Academy of Microbiology and a Member of the National Academy of Sciences and the American Academy of Arts and Sciences. Currently, she is leading the Ecology and Biosphere Engineering Initiative for Caltech's Resnick Sustainability Institute.

Context matters: agathokakological roles for redox-active "antibiotics" from the soil to the clinic

In this talk, Newman will explain what "agathokakological" means and how this word can help us understand the varied roles microbially produced redox active metabolites can play in diverse ecosystems. These compounds, many of which come in striking colors that change when they are oxidized or reduced, can serve as potent toxins or as lifelines for the cells that produce them according to their microenvironment and physiological state. She will discuss how we can harness our understanding of these molecules to develop new tools to control microbial populations and communities.

INSTITUTE FOR ENVIRONMENTAL GENOMICS
The UNIVERSITY of OKLAHOMA

CENTRAL SOUTH UNIVERSITY 中南大學

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More details and previous iFAST seminar videos are available on https://www.ou.edu/ieg/seminars.

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