

# iFAST: The International Forum on Advanced Environmental Sciences and Technology

*A series of distinguished seminars by eminent scientists*

8 a.m. CST; 9 a.m. EST; 2 p.m. GMT; 10 p.m. Beijing

**Wednesday, Nov. 24, 2021**



**Matthew B. Sullivan**

OHIO STATE  
UNIVERSITY

<https://microbiology.osu.edu/people/sullivan.948>

M. B. Sullivan studies viruses that infect microbes in their natural settings using an experimental and informatic toolkit he has pioneered, and now applies to the oceans, soils, humans, and extreme environments. Sullivan is a professor of microbiology and civil, environmental and geodetic engineering at Ohio State University, a co-founder of the UA Ecosystem Genomics Institute, co-director of OSU's Infectious Disease Institute Microbial Communities Program, founding director of OSU's Center of Microbiome Science, provides leadership for OSU's EMERGE Biology Integration Institute, and is a Gordon and Betty Moore Foundation investigator, a Kavli fellow, a Beckman mentor, a senior editor at Nature Publishing Group's ISME Journal, and a fellow of the American Academy of Microbiology.

## **How studying ocean viruses may help save the Earth and cure disease**

Microbes are recently recognized as driving the energy and nutrient transformations that fuel Earth's ecosystems in soils, oceans and humans. Where studied, viruses appear to modulate these microbial impacts in ways ranging from mortality and nutrient recycling to extensive metabolic reprogramming during infection. As environmental virology strives to get a handle on the global virosphere (the diversity of viruses in nature), we face challenges to organize this "sequence space" (create a sequence-based viral taxonomy), link these viruses to their natural hosts (who infects whom), and establish how virus populations are structured (ecological drivers) and impact natural ecosystems (their impacts). Here I will focus on how these efforts are revealing new biology in the oceans, but also hint at recent advances in assessing viruses of microbes in humans. In all, these "viral ecogenomic" approaches are helping map and understand viruses in complex systems in ways that will underpin a new generation of eco-systems biology and medicine.



INSTITUTE FOR ENVIRONMENTAL GENOMICS  
The UNIVERSITY of OKLAHOMA



中南大學  
CENTRAL SOUTH UNIVERSITY

**Zoom webinar ID: 934 8142 2012** (<https://zoom.us/j/93481422012>)

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

Organizing Committee Chair: Jizhong Zhou (University of Oklahoma, USA; <https://www.ou.edu/ieg>)  
Xueduan Liu (Central South University, China)

The University of Oklahoma is an equal opportunity institution. [www.ou.edu/eoo](http://www.ou.edu/eoo)