

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

*A series of distinguished seminars by eminent scientists*

8 a.m. CDT, 9 a.m. EDT; 1 p.m. GMT, 9 p.m. China

Wednesday, Sept 7, 2022



**Per Halkjær Nielsen**

AALBORG UNIVERSITY

<https://vbn.aau.dk/en/persons/105842>

P. H. Nielsen is a professor of the Department of Chemistry and Bioscience at Aalborg University, Aalborg, Denmark. Nielsen is heading the Centre for Microbial Communities where they study uncultured microorganisms in natural and engineered systems. He has been a pioneer in developing and applying molecular methods and single cell microbiology to elucidating structure and function of microbial communities in wastewater treatment, resource recovery and bioenergy production. He has been heading the IWA specialist group on microbial ecology and water engineering (2005-2013) and has since been the head of the BioCluster, coordinating activities between IWA and ISME. He is a fellow of the Danish Academy of Technical Science and has got several prestigious awards, including the title Knight of Dannebrog.

## Novel insights into the microbial ecology of global wastewater treatment systems

Complex uncultured microbial communities carry out wastewater treatment, which often includes water reuse, resource recovery and energy production. Despite a lot of research over the years, only lately, we have got a real breakthrough in the understanding of identity, function and ecology of the process-critical microbes. I will present new results from more than 750 treatment plants across the world, the retrieval and annotation of more than 1000 high-quality metagenome assembled genomes, and development of comprehensive sets of FISH probes for the visualization and in situ studies of ecophysiology. Examples of insights into novel species, physiologies, global distribution, seasonal variation, and main drivers for community assembly, such as immigration, will be presented. It all provides a shared resource in microbial ecology via the MiDAS webpage, providing new opportunities for cross-study comparisons and ecological studies at high taxonomic resolution, essential for future informed management of wastewater treatment systems.



INSTITUTE FOR ENVIRONMENTAL GENOMICS  
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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)

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