

# 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. Beijing

**Wednesday, Sept. 1, 2021**



**Willy Verstraete**  
Ghent University

<https://www.cmet.ugent.be/users/prof-dr-ir-willy-verstraete>

W. VERSTRAETE became engineer at the Ghent University and subsequently obtained a doctorate degree in the field of microbiology at the Cornell University, Ithaca (USA). He then returned to Ghent, where he became professor and started the Laboratory of Microbial Ecology and Technology (LabMET - Faculty of Bioscience Engineering). Since October 2011, he has become emeritus professor. His R&D has as central theme Microbial Resource Management, i.e., the design, operation and control of processes mediated by mixed microbial cultures, more specifically by microbiomes. Verstraete has been instrumental in the creation of several successful spin-offs from Ghent University in the field of applied microbial ecology (environmental technology; food and feed). In 2005, he was chosen by an international jury to receive the highest scientific prize in his country, i.e., the Excellence in Science Prize, awarded by the National Science Foundation. In 2006, he was awarded by the International Water Association the Imhoff Award for his contribution in the domain of water biotreatment. In 2015, he became nominated as advisor of the Dutch Water Institute KWR, to deal with the aspects of water and cyclic economy. He coordinated the Amsterdam project Power to Protein. Since 2014, he ranks in the list of Highly Cited Researchers. In September 2016, he received from the International Water Association and the International Society for Microbial Ecology, cooperating in MEWE (Microbial Ecology and Water Engineering), the Ardern and Lockett Award for his contributions in the fields of water engineering and microbial ecology. In April 2016, Verstraete was elected chairman of the board of the National Science Foundation FWO Belgium.

## Engineering microbial cleantech for environmental sustainability

The discussions about the actions to be taken for planetary sustainability rarely deal with issues related to microbiology, microbial ecology, microbial technology. Yet, there is a lot that the latter can bring in to improve the burdens of climate change which we face. The key feature is that scientists and engineers must come to more effective management of the microbiomes in soils, aqueous environments and in relation to bodily systems such as the rumen, the gastro-intestinal tract, the skin ... To do this properly, some generic principles in relation to concepts such as microbial economics, Pareto distribution curves, top predator involvements, biostability boundary conditions and reliable stochasticity need to be better defined and considered. Based on such concepts, microbiologists can take leadership to speak out on which biotech practices better be downscaled (e.g., cultivating crops needing lots of mineral nitrogen, activated sludge treatment, using ruminants to convert fiber) and which deserve to be fully promoted (e.g., full treatment of wastewater to potable water, anaerobic digestion, production of microbial protein, use of probiotics). A major issue is that the consumer and the regulator must be convinced that working with and producing products by natural consortia of microorganisms can be done in a safe and quality assured way.



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

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