



Indian Institute of Technology Delhi

DEPARTMENT OF BIOCHEMICAL ENGINEERING & BIOTECHNOLOGY

2017-18 Seminar Series

Wednesday, January 03, 2018



Characterizing the Microbiomes that Rule the World (and Space) !

Dr. Abhishek S. Dhoble

Postdoctoral Fellow, Biological Engineering,
University of Illinois at Urbana-Champaign (UIUC), USA

<http://abe-bhaleraolab.age.uiuc.edu/drupal/adhoble>

For years, microorganisms like bacteria have had a bad name. They are something to be scrubbed away, things to be avoided. But now they have identified to be the key players in maintaining health and wellness in plants, animals and humans: the 100 trillion good bacteria that live in or on the human body. Further the anaerobic microbiome in human waste may have a new use: sending NASA spacecraft from the long-term space missions back to Earth. The current next generation sequencing technologies are too slow and analysis-intensive to be practical during long-term space missions or for on-site microbiome characterization in earth-bound applications. Flow cytometry is faster and generates easier to interpret data of greater immediate utility. A novel combination of rapidness, high-throughput nature of flow cytometry, with the increasing capacity to analyze massive, high-dimensional datasets with machine learning, will revolutionize the field of biology, medicine, ecology, agriculture and environment in not so long future. Applications of the proposed flow cytometry based method along with novel microbiome engineering strategies will be discussed in the context of ISRO's 'Indian Human Spaceflight Programme' and earth-bound applications like improving DRDO/Indian Railway's Bio-digesters, Namami Gange Programme - National Mission for Clean Ganga, bovine mastitis – the most costly disease to the Indian dairy industry and surveying antimicrobial resistance in one of the most reported bacterial infections - Gonorrhoea!

All are welcome

Seminar will be held in **DBEB SEMINAR ROOM** at **Block I, Room 232** at **4 PM**
For additional information, contact Seminar coordinator D. Sundar at sundar@dbeb.iitd.ac.in