



UNIVERSITY OF DELAWARE

ENGINEERING

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

DEPARTMENTAL SEMINAR



DSM

BRIGHT SCIENCE. BRIGHTER LIVING.

MAY 31, 2022 at 9:00 AM

366 COLBURN LAB

<https://udel.zoom.us/j/96500020782>

Password: nutrition

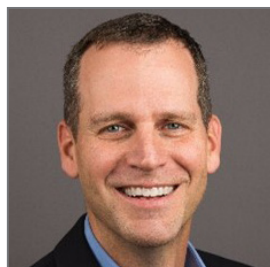
Ross Zirkle & Charles Foster

DSM NUTRITIONAL PRODUCTS

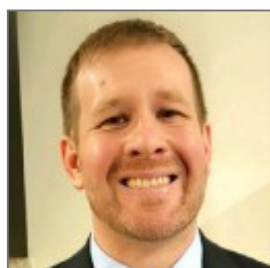
CONCEPTUALIZATION, DESIGN, AND SCALE-UP OF SUSTAINABLE POLYUNSATURATED FATTY ACID PRODUCTION (“OMEGA-3s”) BY MICROBIAL FERMENTATION

Diverse health benefits are associated with dietary consumption of essential, long-chain polyunsaturated fatty acids (PUFA), particularly docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). These compounds have been historically obtained from fish oil, but due to limited supply, variably quality, and need for a sustainable production mode for a rapidly growing market, alternative sources are needed. DSM has been a pioneer in the microbial production of lipids and key technology developments as well as future opportunities and challenges in the field will be reviewed.

ABOUT THE SPEAKERS



Ross Zirkle is Director, Biotechnology Scouting for DSM Nutritional Products in Columbia, MD and currently responsible for the evaluation and launching of biotechnology-based products and projects for DSM. Ross had previously led R&D activities focused on developing new and improved strains of microalgae to produce nutritional oils. He joined Martek Biosciences in 2003 and DSM, via acquisition, in 2010. He has served as R&D lead on projects involving microalgae as production platforms for therapeutic proteins, biofuel and omega-3 rich oils. Prior to joining Martek Biosciences, he was a Research Scientist at Novartis/Syngenta in Research Triangle Park, NC. His research centered on production of bioactive secondary metabolites and polyketide biosynthesis. Ross is a co-inventor on more than 20 granted patents and earned his Bachelor and Master of Science in biochemistry and microbiology from Virginia Tech and his Ph.D. from North Carolina State University.



Charles Foster is a scientist and bioinformatician in the applied microbial physiology group for DSM Nutritional Products in Columbia, MD. Joining in November of 2021, Charles brings expertise in kinetics of metabolism, genome-scale reconstruction and analysis, and multi-omics interpretation, and is applying those skills to help guide both strain development and process scale-up. Prior to joining DSM he completed his Bachelor of Science in chemical engineering at Rutgers University and his Ph.D. at The Pennsylvania State University under the guidance of Costas Maranas. His thesis focused on developing and deploying computational tools to understand and engineer the metabolism of Clostridia organisms for bioproduction.