

Stanford



Nils Aversch

Life Science Research Professional, Resource Recovery Center

Bio

BIO

Nils is a Staff Scientist in the Department of Civil and Environmental Engineering (Criddle-Lab), supported by the Stanford Natural Gas Initiative. As member of the Center for the Utilization of Biological Engineering in Space (CUBES) he focuses on engineering gas-fermenting microbes towards production of high-performance polyesters as sustainable alternative to petrochemistry-derived plastics.

Before joining Stanford, Nils was task lead of Synthetic Biology with Universities Space Research Association as an Associate Scientist at NASA Ames Research Center. He received his PhD from the University of Queensland in Brisbane, Australia, in Metabolic Engineering working at the Australian Centre for Water and Environmental Biotechnology. Nils holds an engineer's degree (Dipl. Ing.) in Biochemical Engineering, from the Technical University of Dortmund, Germany.

PROJECTS

- Production of high-strength bio-polymers from next-generation C1-feedstocks - Stanford University / CUBES (December 17, 2018)

LINKS

- Center for the Utilization of Biological Engineering in Space: <http://cubes.space/>

Publications

PUBLICATIONS

- **Cultivation of the Dematiaceous Fungus *Cladosporium sphaerospermum* Aboard the International Space Station and Effects of Ionizing Radiation.** *Frontiers in microbiology*
Aversch, N. J., Shunk, G. K., Kern, C.
2022; 13: 877625
- **Towards a Biomanufacturing on Mars** *FRONTIERS IN ASTRONOMY AND SPACE SCIENCES*
Berliner, A. J., Hilzinger, J. M., Abel, A. J., McNulty, M. J., Makrygiorgos, G., Aversch, N. H., Sen Gupta, S., Benvenuti, A., Caddell, D. F., Cestellos-Blanco, S., Doloman, A., Friedline, S., Ho, et al
2021; 8
- **Choice of Microbial System for In-Situ Resource Utilization on Mars** *FRONTIERS IN ASTRONOMY AND SPACE SCIENCES*
Aversch, N.
2021; 8
- **Anodic electro-fermentation: Empowering anaerobic production processes via anodic respiration.** *Biotechnology advances*
Vassilev, I., Aversch, N. J., Ledezma, P., Kokko, M.
2021: 107728
- **Editorial: Biotechnological Production and Conversion of Aromatic Compounds and Natural Products.** *Frontiers in bioengineering and biotechnology*
Aversch, N. J., Kayser, O. n.

2020; 8: 646

- **Metabolic engineering of *Bacillus subtilis* for production of para-aminobenzoic acid - unexpected importance of carbon source is an advantage for space application** *MICROBIAL BIOTECHNOLOGY*
Aversch, N. H., Rothschild, L. J.
2019; 12 (4): 703-14
- **Metabolic Network Analysis of Microbial Methane Utilization for Biomass Formation and Upgrading to Bio-Fuels** *FRONTIERS IN ENERGY RESEARCH*
Aversch, N. H., Kracke, F.
2018; 6
- **Metabolic Engineering of the Shikimate Pathway for Production of Aromatics and Derived Compounds-Present and Future Strain Construction Strategies** *FRONTIERS IN BIOENGINEERING AND BIOTECHNOLOGY*
Aversch, N. H., Kroemer, J. O.
2018; 6: 32
- **Toward Synthetic Biology Strategies for Adipic Acid Production: An in Silico Tool for Combined Thermodynamics and Stoichiometric Analysis of Metabolic Networks** *ACS SYNTHETIC BIOLOGY*
Aversch, N. H., Martinez, V. S., Nielsen, L. K., Kromer, J. O.
2018; 7 (2): 490-509
- **Enhanced production of para-hydroxybenzoic acid by genetically engineered *Saccharomyces cerevisiae*** *BIOPROCESS AND BIOSYSTEMS ENGINEERING*
Aversch, N. H., Prima, A., Kroemer, J. O.
2017; 40 (8): 1283-1289
- **Quantitative analysis of aromatics for synthetic biology using liquid chromatography** *Biotechnology Journal*
Lai, B., Plan, M. R., Aversch, N. J., Yu, S., Kracke, F., Lekieffre, N., Bydder, S., Hodson, M. P., Winter, G., Krömer, J. O.
2017; 12 (1)
- **Discrimination of wild types and hybrids of *Duboisia myoporoides* and *Duboisia leichhardtii* at different growth stages using H-1 NMR-based metabolite profiling and tropane alkaloids-targeted HPLC-MS analysis** *PHYTOCHEMISTRY*
Ullrich, S., Aversch, N. H., Castellanos, L., Choi, Y., Rothauer, A., Kayser, O.
2016; 131: 44-56
- **Production of para-aminobenzoic acid from different carbon-sources in engineered *Saccharomyces cerevisiae*** *MICROBIAL CELL FACTORIES*
Aversch, N. H., Winter, G., Kromer, J. O.
2016; 15: 89
- **Quorum-sensing linked RNA interference for dynamic metabolic pathway control in *Saccharomyces cerevisiae*** *METABOLIC ENGINEERING*
Williams, T. C., Aversch, N. H., Winter, G., Plan, M. R., Vickers, C. E., Nielsen, L. K., Kroemer, J. O.
2015; 29: 124-134
- **In vivo instability of chorismate causes substrate loss during fermentative production of aromatics** *YEAST*
Winter, G., Aversch, N. H., Nunez-Bernal, D., Kroemer, J. O.
2014; 31 (9): 333-341
- **Assessing Heterologous Expression of Hyoscyamine 6 beta-Hydroxylase - a Feasibility Study**
Aversch, N. H., Kayser, O., Duc, N. M., Elfahmi, Wirasutisna, K. R., Sukrasno, Suganda, A. G., Abe, Petersen, M., Insanu, Hartati, R., Pramastya, H., Julianti, E., Fisher, N.
ELSEVIER SCIENCE BV.2014: 69-78
- **Production of aromatics in *Saccharomyces cerevisiae*-A feasibility study** *JOURNAL OF BIOTECHNOLOGY*
Kroemer, J. O., Nunez-Bernal, D., Aversch, N. H., Hampe, J., Varela, J., Varela, C.
2013; 163 (2): 184-193
- **Organosoluble enzyme conjugates with poly(2-oxazoline)s via pyromellitic acid dianhydride** *JOURNAL OF BIOTECHNOLOGY*
Konieczny, S., Fik, C. P., Aversch, N. H., Tiller, J. C.
2012; 159 (3): 195-203