Application of the NDHA model to describe N₂O dynamics in activated sludge mixed culture biomass
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Comammox Nitrospira are abundant ammonia oxidizers in diverse groundwater-fed rapid sand filter communities
Research output: Research - peer-review › Journal article – Annual report year: 2018

Comparative genomics sheds light on niche differentiation and the evolutionary history of comammox Nitrospira
Research output: Research - peer-review › Journal article – Annual report year: 2018

Corrigendum to "Decay Experiments of Effective N-Removing Microbial Communities in Sequencing Batch Reactors"
Lv, C., Ming, L., Zhong, S., Wang, J., Lei, W., Mutlu, A. G. & Smets, B. F. 2018 In : Journal of Chemistry. 2018
Research output: Research - peer-review › Comment/debate – Annual report year: 2018

Diagnostics, Monitoring and Mitigation of N₂O Emissions from Wastewater Treatment Operations – Outcomes of the LAGAS project
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2018

Does universal 16S rRNA gene amplicon sequencing of environmental communities provide an accurate description of nitrifying guilds?
Research output: Research - peer-review › Journal article – Annual report year: 2018

Estimating the Transfer Range of Plasmids Encoding Antimicrobial Resistance in a Wastewater Treatment Plant Microbial Community
Research output: Research - peer-review › Journal article – Annual report year: 2018

Evidence of co-metabolic bentazone transformation by methanotrophic enrichment from a groundwater-fed rapid sand filter
Research output: Research - peer-review › Journal article – Annual report year: 2018

Genomic and ecological variation in comammox Nitrospira populations
Research output: Research - peer-review › Poster – Annual report year: 2018

Metagenomic analysis to elucidate the metabolic potential of microbial communities in Danish waterworks
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2018

Model-based optimization biofilm based systems performing autotrophic nitrogen removal using the comprehensive NDHA model
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018
Monitoring and modeling of nitrogen conversions in membrane-aerated biofilm reactors: Effects of intermittent aeration
Research output: Research › Ph.D. thesis – Annual report year: 2018

Nitrous oxide emissions from biofilm processes for wastewater treatment
Research output: Research - peer-review › Journal article – Annual report year: 2018

Nitrous oxide production in intermittently aerated Partial Nitritation-Anammox reactor: oxic N₂O production dominates and relates with ammonia removal rate
Research output: Research - peer-review › Journal article – Annual report year: 2018

Novel method reveals a narrow phylogenetic distribution of bacterial dispersers in environmental communities exposed to low hydration conditions
Research output: Research - peer-review › Journal article – Annual report year: 2018

Patterns of permissiveness towards broad host range plasmids in microbial communities across the urban water cycle in Europe
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Reactor staging influences microbial community composition and diversity of denitrifying MBBRs- Implications on pharmaceutical removal
Research output: Research - peer-review › Journal article – Annual report year: 2018

The pH dependency of N-converting enzymatic processes, pathways and microbes: effect on net N₂O production
Research output: Research - peer-review › Review – Annual report year: 2018

Transfer and long-term persistence of plasmids encoding antimicrobial resistance in wastewater treatment plant microbial communities
Use of Forward Osmosis to Harvest Methane Oxidizing Bacteria Producing Single Cell Protein

Valorisation of Effluents from Anaerobic Digestion as Single Cell Protein – Focus on Safe Gas Supply

Water & Sanitation: An Essential Battlefront in the War on Antimicrobial Resistance

Where does N2O from Partial Nitritation-Anammox processes come from? – A high temporal resolution study of a lab-scale system gives answers

Bacteria from Wheat and Cucurbit Plant Roots Metabolize PAHs and Aromatic Root Exudates: Implications for Rhizodegradation

Calibration of the comprehensive NDHA-N2O dynamics model for nitrifier-enriched biomass using targeted respirometric assays

Calibration of the NDHA N2O model via respirometric assays

Challenges in using allylthiourea and chlorate as specific nitrification inhibitors

Changes in intermittent aeration regimes are effective tools to manage bio-granule size and microbial communities in partial nitritation-anammox SBRs

Comammox Nitrospira are key nitrifiers in diverse groundwater-fed drinking water filters

Copper dosing enhances nitrification in biofilters treating groundwater
Counter-diffusion biofilms have lower N₂O emissions than co-diffusion biofilms during simultaneous nitrification and denitrification: Insights from depth-profile analysis
Research output: Research - peer-review › Journal article – Annual report year: 2017

Density and distribution of nitrifying guilds in rapid sand filters for drinking water production: Dominance of Nitrospira spp.
Research output: Research - peer-review › Journal article – Annual report year: 2017

Diffusion and sorption of organic micropollutants in biofilms with varying thicknesses
Research output: Research - peer-review › Journal article – Annual report year: 2017

Discovery and description of complete ammonium oxidizers in groundwater-fed rapid sand filters
Research output: Research › Ph.D. thesis – Annual report year: 2017

Diversity, structure, and novel physiologies in microbial communities in rapid sand filters
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Dramatic loss of comammox Nitrospira associated with long-term nitrite feeding
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Dynamics of N₂O production pathways analyzed by ¹⁵N¹⁸O isotope labeling
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Establishment and calibration of consensus process model for nitrous oxide dynamics in water quality engineering
Research output: Research › Ph.D. thesis – Annual report year: 2017

From biofilm ecology to reactors: a focused review
Research output: Research - peer-review › Journal article – Annual report year: 2017

Heterotrophs are key contributors to nitrous oxide production in mixed liquor under low C-to-N ratios during nitrification - batch experiments and modelling
Research output: Research - peer-review › Journal article – Annual report year: 2017

Intermittent Aeration Suppresses Nitrite-Oxidizing Bacteria in Membrane-Aerated Biofilms: A Model-Based Explanation
Research output: Research - peer-review › Journal article – Annual report year: 2017
Invasion in microbial communities: Role of community composition and assembly processes

Research output: Research › Ph.D. thesis – Annual report year: 2017

Invasion of nitrite oxidizer dominated communities: interactions between propagule pressure and community composition

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017

Low nitrous oxide production in intermittent-feed high performance nitritating reactors

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017

Low nitrous oxide production through nitrifier-denitrification in intermittent-feed high-rate nitritation reactors

Research output: Research › peer-review › Journal article – Annual report year: 2017

Membrane-aerated Nitrifying Biofilms: Continuous versus Intermittent Aeration

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017

Metal stressors consistently modulate bacterial conjugal plasmid uptake potential in a phylogenetically conserved manner

Research output: Research › peer-review › Journal article – Annual report year: 2016

Microbial biotechnologies for potable water production

Research output: Research › peer-review › Journal article – Annual report year: 2017

Moving bed biofilm reactors (MBBRs) for removal of pharmaceuticals in biological wastewater treatment

Research output: Research › peer-review › Poster – Annual report year: 2017

N2O and NO dynamics in AOB-enriched and mixed-culture biomass: experimental observations and model calibration

Research output: Research › peer-review › Poster – Annual report year: 2017

N2O and NO dynamics in AOB-enriched and mixed-culture biomass: Experimental Observations and Model Calibration

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017

Niche differentiation and evolution of comammox Nitrospira through a comparative genomics analysis

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017

Niche partitioning within genus Nitrospira is affected by environmental copper concentration

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017

Nitrogen recovery from wastewater to produce microbial protein using methane oxidizing bacteria

Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2017
Nitrotoga is selected over Nitrospira in newly assembled biofilm communities from a tap water source community at increased nitrite loading

Research output: Research - peer-review › Journal article – Annual report year: 2017

Nitrous oxide Production in Membrane-aerated Nitrifying Biofilms: Experimentation and Modelling

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

N2O emissions from a single-stage partial nitritation/anammox granule-based reactor – a model based assessment

Research output: Research - peer-review › Poster – Annual report year: 2017

Operational strategies for mitigation of nitrous oxide emissions from a phase isolated fullscale WWTP

Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Pathways and Controls of N2O Production in Nitritation-Anammox Biomass

Research output: Research - peer-review › Journal article – Annual report year: 2017

Plasmid host range (permisseveness) in comminities of activated sludge in wastewater treatment plant

Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Plasmid host range (permisseveness) in microbial communities of activated sludge in wastewater treatment plant.

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Removal of micropollutants in Moving Bed Biofilm reactors (MBBRs): Microbial-diversity-and-functional-relationships

Research output: Research › Ph.D. thesis – Annual report year: 2017

Removal of pharmaceuticals in Moving Bed Biofilm Reactors – The impact of design and operating conditions

Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Simple control rules for mitigating N2O emissions in phase isolated fullscale WWTPs

Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Simple control strategy for mitigating N2O emissions in phase isolated full-scale WWTPs

Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017
Sorption and diffusion of micropollutants on/in biofilms: experimental observations and a model-based interpretation
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

The competitive edge: competition and biofilm composition, an individual-based modelling approach
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

The Europe - China Water Innovation Balance – Findings from the PIANO project’s mapping
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Tracking and understanding AMR dynamics across European urban water systems
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

A conceptual framework for invasion in microbial communities
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

A consilience model to describe N₂O production during biological N removal
Research output: Research - peer-review › Journal article – Annual report year: 2016

Assessing motility in environmental communities - a novel method
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

Biodiversity positively associates with biofilm thickness in Moving Bed Biofilm Reactors (MBBRs) – Implications on micropollutant removal and nitrification
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Biofilm Thickness Influences Biodiversity in Nitrifying MBBRs-Implications on Micropollutant Removal
Research output: Research - peer-review › Journal article – Annual report year: 2016

Can we enhance the biotransformation of pharmaceutical micropollutants by controlling biofilm thickness in MBBR?
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Challenges in microbial ecology: Building predictive understanding of community function and dynamics
Investigating comammox Nitrospira in rapid sand filters via metagenomics and single-cell genomics
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Linking nitrifiers diversity to the flux of their key resources
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Low-sludge age EBPR process for resource recovery – microbial and biochemical process characterization
Research output: Research - peer-review › Poster – Annual report year: 2016

Measuring community-wide conjugative plasmid permissiveness
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

Metagenomic analysis of rapid gravity sand filter microbial communities suggests novel physiology of Nitrospira spp
Research output: Research - peer-review › Journal article – Annual report year: 2016

Metagenomics and single-cell genomics reveal high abundance of comammox Nitrospira in a rapid gravity sand filter treating groundwater
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Microbes in biological processes for municipal landfill leachate treatment: Community, function and interaction
Research output: Research - peer-review › Journal article – Annual report year: 2016

Microbial and biochemical process characterization of a low-sludge age EBPR process for resource recovery
Research output: Research - peer-review › Poster – Annual report year: 2016

Microbial biodiversity enhances micropollutants biotransformation in Moving Bed Biofilm Reactors (MBBR) with controlled biofilm thickness
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Optimizing nitrification in biological rapid sand filters for drinking water production
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Sammenhæng mellem aktivitet af metanoksiderende bakterier, opformeret fra sandfiltre på danske vandværker, og nedbrydningen af pesticidet bentazon
Short-sludge age EBPR process – Microbial and biochemical process characterisation during reactor start-up and operation
Research output: Research - peer-review › Journal article – Annual report year: 2016

Sources and propagation of uncertainty in N2O model predictions
Research output: Research - peer-review › Poster – Annual report year: 2016

Spatial distribution of microbial community and N₂O depth profiles in counter- and co-diffusion biofilms functioning simultaneously nitrification and denitrification
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Stable isotope probing and dynamic loading experiments provide insight into the ecophysiology of novel ammonia oxidizers in rapid gravity sand filters
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Structural and functional robustness of an environmental bacterial community degrading diesel fuel
Research output: Research - peer-review › Conference abstract in journal – Annual report year: 2017

Suppression of nitrite-oxidizing bacteria in intermittently aerated biofilm reactors: a model-based explanation
Ma, Y., Domingo Felez, C., Plósz, B. G. & Smets, B. F. 2016 Microbial ecology and water engineering & biofilms specialist groups (MEWE2016). Copenhagen, Denmark : IWA, p. 158-159
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Contact with backwashing on nitrification in biological rapid sand filters under different ammonium loading conditions
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2016

The influence of reactor staging on microbial structure and functions in pre-denitrifying MBBRs
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

The perks of agent-based modelling with iDynoMiCS 2
Research output: Research - peer-review › Poster – Annual report year: 2016
The perks of agent-based modelling with iDynoMICS 2
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

The perks of agent-based modelling with iDynoMICS 2
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

Towards a consensus-based biokinetic model for green microalgae – The ASM-A
Research output: Research - peer-review › Journal article – Annual report year: 2016

Towards an optimal experimental design for N2O model calibration during biological nitrogen removal
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2016

Underestimation of ammonia-oxidizing bacteria abundance by amplification bias in amoA-targeted qPCR
Research output: Research - peer-review › Journal article – Annual report year: 2016

Used water resource recovery using green microalgae

A comprehensive 454 survey provides insights into microbial diversity and community structure in rapid sand filters
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015

An improved method to set significance thresholds for β-diversity testing in microbial community comparisons: Setting significance threshold for β-diversity
Research output: Research - peer-review › Journal article – Annual report year: 2015

A nitrate sensitive planar optode; performance and interferences
Research output: Research - peer-review › Journal article – Annual report year: 2015

A novel control strategy for single-stage autotrophic nitrogen removal in SBR
Research output: Research - peer-review › Journal article – Annual report year: 2015

A novel high-throughput drip-flow system to grow autotrophic biofilms of contrasting diversities
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

Challenges encountered calibrating N2O dynamics from mixed cultures
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2015
EBP2R – An innovative enhanced biological nutrient recovery activated sludge system to produce growth medium for green microalgae cultivation
Research output: Research - peer-review › Journal article – Annual report year: 2015

Evaluating Alternate Biokinetic Models for Trace Pollutant Cometabolism
Research output: Research - peer-review › Journal article – Annual report year: 2015

Impact of operational conditions and reactor configuration on process performance and microbial community in short solid retention time EBPR systems
Research output: Research - peer-review › Poster – Annual report year: 2015

Influence of biofilm thickness on micropollutants removal in nitrifying MBBRs
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

Magnitude and determinants of plasmid transfer from exogenous donor strains to complex microbial communities
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2015

Management of microbial community composition, architecture and performance in autotrophic nitrogen removing bioreactors through aeration regimes
Research output: Research › Ph.D. thesis – Annual report year: 2015

Measuring biogeochemical heterogeneity at the micro scale in soils and sediments
Research output: Research › Journal article – Annual report year: 2015

Metagenomic analysis of microbial communities in rapid sand filter treating groundwater. Community diversity and metabolic potential
Research output: Research › peer-review › Conference abstract in proceedings – Annual report year: 2015

Metal specific modulation of community permissiveness towards broad host range plasmids through stress
Research output: Research › peer-review › Conference abstract in proceedings – Annual report year: 2015

Metal stress modulates the immediate plasmid uptake potential of soil microbes
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2015

Modelling green microalgal growth, nutrient uptake and storage in the ASM framework
Research output: Research › Sound/Visual production (digital) – Annual report year: 2015

Modulation of microbial community permissiveness towards broad host range conjugative plasmid under metal stress
Permissiveness of soil microbial communities towards broad host range plasmids
Research output: Research › Ph.D. thesis – Annual report year: 2015

Phosphorus addition can increase nitrification in biological rapid sand filters for drinking water treatment
Research output: Research › Conference abstract for conference – Annual report year: 2015

Reducing Diffusion Limitation Shifts the Dominant Nitrate Reduction Metabolism from Incomplete Denitrification to Dissimilatory Nitrate Reduction to Ammonium
Research output: Research › Conference abstract for conference – Annual report year: 2015

Taxonomic and metagenomic profiling of rapid sand filter microbiome reveals a high Nitrospira incidence
Research output: Research › Conference abstract in proceedings – Annual report year: 2015

The effect of spatial heterogeneity on nitrate reduction in soil systems
Research output: Research › Ph.D. thesis – Annual report year: 2015

Wastewater resource recovery via the Enhanced Biological Phosphorus Removal and Recovery (EBP2R) process coupled with green microalgae cultivation
Research output: Research › Ph.D. thesis – Annual report year: 2015

Wastewater resource recovery with green microalgae – modelling the microalgal growth, nutrient uptake and storage using ASM-A
Research output: Research › Conference abstract in proceedings – Annual report year: 2015

Aeration Strategies To Mitigate Nitrous Oxide Emissions from Single-Stage Nitritation/Anammox Reactors
Research output: Research › Conference abstract in proceedings – Annual report year: 2014

A Green Micro-Algal Growth Model developed in the Activated Sludge Modeling Framework
Research output: Research › Conference abstract in proceedings – Annual report year: 2014

A model framework to describe growth-linked biodegradation of trace-level pesticides in the presence of coincidental carbon substrates and microbes
Research output: Research › Conference abstract in proceedings – Annual report year: 2014
An Innovative Activated Sludge System for Enhanced Nutrient Recovery via Downstream Cultivation of Green Microalgae
Valverde Perez, B., Ramin, E., Smets, B. F. & Plósz, B. G. 2014
Research output: Research - peer-review › Poster – Annual report year: 2014

Broad host range plasmids can invade an unexpectedly diverse fraction of a soil bacterial community
Research output: Research - peer-review › Journal article – Annual report year: 2014

Colony morphology and transcriptome profiling of Pseudomonas putida KT2440 and its mutants deficient in alginate or all EPS synthesis under controlled matric potentials
Research output: Research - peer-review › Journal article – Annual report year: 2014

Deep sequencing of soil transconjugal pools reveals unexpected phylogenetic diversity of bacteria receiving broad host range plasmids
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2014

Diagnostics in biological rapid sand filters treating groundwater – governing factors for nitrification
Research output: Research - peer-review › Paper – Annual report year: 2014

Does microbial cm-scale heterogeneity impact pesticide degradation in and leaching from loamy agricultural soils?
Research output: Research - peer-review › Journal article – Annual report year: 2014

Effects of dynamic operating conditions on nitrification in biological rapid sand filters for drinking water treatment
Research output: Research - peer-review › Journal article – Annual report year: 2014

Effects of Filamentous Bulking on Activated Sludge Rheology and Compression Settling Velocity
Research output: Research - peer-review › Paper – Annual report year: 2014

Fine scale spatial variability of microbial pesticide degradation in soil: scales, controlling factors, and implications
Research output: Research - peer-review › Review – Annual report year: 2014

Internal Porosity of Mineral Coating Supports Microbial Activity in Rapid Sand Filters for Groundwater Treatment
Research output: Research - peer-review › Journal article – Annual report year: 2014

Long-term manure exposure increases soil bacterial community potential for plasmid uptake
Research output: Research - peer-review › Journal article – Annual report year: 2014
Metal stress alters a bacterial community’s permissiveness towards plasmids
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2014

Metal stress alters a bacterial community’s permissiveness towards plasmids
Research output: Research - peer-review › Poster – Annual report year: 2014

Metal stress response influences a soil bacterial community’s permissiveness towards a broad-host-range plasmid
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2014

Methanotrophs assisted bentazone degradation
Research output: Research - peer-review › Poster – Annual report year: 2014

Microbial diversity and identification of core taxa in rapid sand filters treating groundwaters
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Mineral coating creates internal porosity and supports microbial activity in rapid sand filters treating groundwaters
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Mineral coating supports microbial activity in rapid sand filters for drinking water production
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Modelling and assessment of the storage of nutrients in a mixed green microalgae culture
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Modelling N2O dynamics in the engineered N cycle: Evaluation of alternate model structures
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Modelling the Impact of Filamentous Bacteria Abundance in a Secondary Settling Tank: CFD Sub-models Optimization Using Long - term Experimental Data
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Nitrification biookinetics in rapid sand filters for drinking water treatment
Research output: Research › Ph.D. thesis – Annual report year: 2014

Nitrification in biological rapid sand filters treating drinking water: monitoring governing factors
Research output: Research - peer-review › Poster – Annual report year: 2014
**Novel assay to measure the plasmid mobilizing potential of mixed microbial communities**
Research output: Research - peer-review › Journal article – Annual report year: 2014

**Processes effecting nitrification performance in biological rapid sand filters**
Research output: Research › Ph.D. thesis – Annual report year: 2014

**Protocol for Evaluating the Permissiveness of Bacterial Communities Toward Conjugal Plasmids by Quantification and Isolation of Transconjugants**
Research output: Research - peer-review › Book chapter – Annual report year: 2014

**QPCR quantification of ammonia oxidizing bacteria: What should the target be?**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

**Seasonal and spatial variations in microbial activity at various phylogenetic resolutions at a groundwater – surface water interface**
Research output: Research - peer-review › Journal article – Annual report year: 2014

**Seasonal Arsenic Accumulation in Stream Sediments at a Groundwater Discharge Zone**
Research output: Research - peer-review › Journal article – Annual report year: 2014

**Sequentially aerated membrane biofilm reactors for autotrophic nitrogen removal: microbial community composition and dynamics**
Research output: Research - peer-review › Journal article – Annual report year: 2013

**Structure, composition, and strength of nitrifying membrane-aerated biofilms**
Research output: Research - peer-review › Journal article – Annual report year: 2014

**Taxonomic and functional diversity of microbial communities in rapid sand filters for groundwater treatment**
Research output: Research › Ph.D. thesis – Annual report year: 2014

**The Effect Of Light On Mixed Green Micro-Algal Growth: Experimental Assessment And Modelling**
Research output: Research - peer-review › Poster – Annual report year: 2014

**A Mixed Green Micro-Algal Model (MAMO) – Model Identification And Calibration Using Synthetic Medium And Nutrient Rich Carbon Depleted Wastewater**
Research output: Research - peer-review › Paper – Annual report year: 2013

**An operational protocol for facilitating start-up of single-stage autotrophic nitrogen-removing reactors based on process stoichiometry**
Research output: Research - peer-review › Journal article – Annual report year: 2013
A novel bench-scale column assay to investigate site-specific nitrification biokinetics in biological rapid sand filters


Research output: Research - peer-review › Journal article – Annual report year: 2013

Assessing the permissiveness of complex bacterial communities towards conjugal plasmids - A novel method


2013 Congress of The Danish Microbiological Society. Copenhagen: DMS, p. 24-25

Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2013

Assessing the permissiveness of complex bacterial communities towards conjugal plasmids – Development of a novel method


Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2013

Autotrophic Nitrogen Removal in a Membrane-Aerated Biofilm Reactor Under Continuous Aeration: A Demonstration


Research output: Research - peer-review › Journal article – Annual report year: 2013

Barriers to bacterial motility on unsaturated surfaces


Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2013

Calibration and validation of a model describing complete autotrophic nitrogen removal in a granular SBR system


Research output: Research - peer-review › Journal article – Annual report year: 2013

Control of a Biological Nitrogen Removal Process in an Intensified Single Reactor Configuration


Research output: Research - peer-review › Article in proceedings – Annual report year: 2013

Control of a Biological Nitrogen Removal Process in an Intensified Single Reactor Configuration


Research output: Research - peer-review › Sound/Visual production (digital) – Annual report year: 2013

Critical assessment of extracellular polymeric substances extraction methods from mixed culture biomass


Research output: Research - peer-review › Journal article – Annual report year: 2013
Model-based evaluation of the role of Anammox on nitric oxide and nitrous oxide productions in membrane aerated biofilm reactor
Research output: Research - peer-review › Journal article – Annual report year: 2013

Modelling, Experimentation, and Control of Autotrophic Nitrogen Removal in Granular Sludge Systems
Research output: Research › Ph.D. thesis – Annual report year: 2013

Modelling N₂O dynamics in the engineered N cycle: Observations, assumptions, knowns, and unknowns
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2013

Neutrophilic iron-oxidizing bacteria: occurrence and relevance in biological drinking water treatment
Research output: Research › peer-review › Journal article – Annual report year: 2013

Nitrification activity stratifies in a rapid sand filter for drinking water treatment - A study in two Danish waterworks
Research output: Research › peer-review › Conference abstract in proceedings – Annual report year: 2013

Nitrous Oxide and Nitric Oxide Emissions From Single-Stage Nitritation/Anammox Reactors Under Varying Aeration Regimes
Research output: Research › peer-review › Article in proceedings – Annual report year: 2014

N₂O production dynamics in nitrifying/denitrifying activated sludge under defined environmental conditions
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2013

Performance of an autotrophic nitrogen removing reactor: Diagnosis through fuzzy logic
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2013

Phosphate limitation in biological rapid sand filters used to remove ammonium from drinking water
Research output: Research › peer-review › Article in proceedings – Annual report year: 2013

P²M², Physical and physiological properties of membrane-aerated and membrane-supported biofilms
Research output: Research › Ph.D. thesis – Annual report year: 2013

Relating dynamic conditions to the performance of biological rapid sand filters used to remove ammonium, iron, and manganese from drinking water
Research output: Research › peer-review › Conference abstract in proceedings – Annual report year: 2013
Efficient Total Nitrogen Removal in an Ammonia Gas Biofilter through High-Rate OLAND
Research output: Research - peer-review › Journal article – Annual report year: 2012

Energibesparende biologisk proces til kvælstoffjernelse i spildevand
Research output: Research - peer-review › Journal article – Annual report year: 2012

Evaluation on the microbial interactions of anaerobic ammonium oxidizers and heterotrophs in Anammox biofilm
Research output: Research - peer-review › Journal article – Annual report year: 2012

Increased insight in microbial processes in rapid sandfilters in drinking water treatment (DW BIOFILTERS)
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2012

In-situ microbial activity in membrane-aerated biofilms for autotrophic nitrogen conversion
Research output: Research - peer-review › Poster – Annual report year: 2012

Isolation of 2-methyl-4-chlorophenoxyacetic acid degrading bacteria from groundwater sediments using a novel low substrate flux approach
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Microbial Abundance, Distribution and Diversity in Rapid Sand Filters
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Micro-scale spatial expansion of microbial cells and mobile genetic elements.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Modeling the Performance of Biological Rapid Sand Filters Used to Remove Ammonium, Iron, and Manganese From Drinking Water
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Neutrophilic iron oxidizers adapted to highly oxic environments
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Neutrophilic Iron Oxidizing Bacteria: Occurrence and Relevance in Biological Drinking Water Treatment
Research output: Research - peer-review › Paper – Annual report year: 2012

Permissiveness of soil microbial communities toward receipt of mobile genetic elements
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012
Pseudomonad Swarming Motility Is Restricted to a Narrow Range of High Matric Water Potentials
Dechesne, A. & Smets, B. F. 2012 In : Applied and Environmental Microbiology. 78, 8, p. 2936-2940
Research output: Research - peer-review › Journal article – Annual report year: 2012

Recent trends in modelling and simulation of biological nutrient removal systems
Research output: Research - peer-review › Poster – Annual report year: 2012

Recent trends in modelling and simulation of nutrient removal systems
Research output: Research - peer-review › Book chapter – Annual report year: 2012

Redox stratified biofilms to support completely autotrophic nitrogen removal: Principles and results
Pellicer i Nàcher, C. & Smets, B. F. 2012
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Relating dynamic conditions to the performance of biological rapid sand filters used to remove ammonium, iron, and manganese from drinking water
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Sensitivity analysis of autotrophic N removal by a granule based bioreactor: Influence of mass transfer versus microbial kinetics
Research output: Research - peer-review › Journal article – Annual report year: 2012

The Role of Microbial Heterogeneity in Pesticide Degradation in Agricultural Soils
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Transcriptome Dynamics of Pseudomonas putida KT2440 under Water Stress
Research output: Research - peer-review › Journal article – Annual report year: 2012

An individual-based approach to explain plasmid invasion in bacterial populations
Research output: Research - peer-review › Journal article – Annual report year: 2011

Assessing the impact of physical and physiological factors on the oxygen mass transfer process in membrane-aerated biofilm reactors
Research output: Research - peer-review › Poster – Annual report year: 2011

Biological Nitrogen Removal from Domestic Wastewater
Research output: Research - peer-review › Book chapter – Annual report year: 2012
Simultaneous removals of azo dye and nitrogenous compounds by a membrane-aerated biofilm


Structure and activity of lacustrine sediment bacteria involved in nutrient and iron cycles.


Swarming motility is restricted to a narrow range of water matric potential

Dechesne, A. & Smets, B. F. 2011

Udvidelser til ASM Process Modeller til at bestemme lattergas emission fra renseanlæg

Smets, B. F. 2011

Who is who?: Assessing the microbial diversity in wastewater treatment biofilms for completely autotrophic nitrogen removal


Individual-based analysis and prediction of the fate of plasmids in spatially structured bacterial populations


Transfer of conjugative plasmids among bacteria under environmentally relevant conditions


Aggregate size and architecture determine biomass activity for one-stage partial nitritation and anammox


Aggregate Size and Architecture Determine Microbial Activity Balance for One-Stage Partial Nitritation and Anammox


A New Extant Respirometric Assay to Estimate Intrinsic Growth Parameters Applied to Study Plasmid Metabolic Burden


Biodegradation in a Partially Saturated Sand Matrix: Compounding Effects of Water Content, Bacterial Spatial Distribution, and Motility


Ecophysiology and diversity of chloroflexi in an anammox biofilm grown in an anaerobic fixed-bed upflow reactor

Effective Biological Nitrogen Removal Treatment Processes for Domestic Wastewaters with Low C/N Ratios: A Review
Research output: Research - peer-review › Journal article – Annual report year: 2010

Evaluation of Bioaugmentation with Entrapped Degrading Cells as a Soil Remediation Technology
Research output: Research - peer-review › Journal article – Annual report year: 2010

Flagellar motility and differential gene expression of Pseudomonas putida KT2440 under partially hydrated conditions: a study with the novel Pressurized Porous Surface Model (PPSM)
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2010

Flagellar Motility and Gene Expression in Unsaturated Zones
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2010

Gene expression dynamics of pseudomonas putida KT2440 biofilms under water deprivation
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2010

High-rate autotrophic nitrogen removal with novel biofilm reactor technology
Research output: Research › Conference abstract in proceedings – Annual report year: 2010

Hydration-controlled bacterial motility and dispersal on surfaces
Research output: Research - peer-review › Journal article – Annual report year: 2010

Inoculum effects on community composition and nitritation performance of autotrophic nitrifying biofilm reactors with counter-diffusion geometry
Terada, A., Lackner, S., Kristensen, K. & Smets, B. F. 2010 In : Environmental Microbiology. 12, 10, p. 2858-2872
Research output: Research - peer-review › Journal article – Annual report year: 2010

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Research output: Research - peer-review › Article in proceedings – Annual report year: 2010

Microbial community stratification in Membrane-Aerated Biofilm Reactors for Completely Autotrophic Nitrogen Removal
Pellicer i Nàcher, C., Ruscalleda, M., Terada, A. & Smets, B. F. 2010
Research output: Research - peer-review › Poster – Annual report year: 2010

Modelling bioaugmentation in unsaturated porous media: The linuron herbicide example
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2010
Novel assay to assess permissiveness of a soil microbial community toward receipt of mobile genetic elements
Musovic, S., Dechesne, A., Sørensen, J. & Smets, B. F. 2010 In : Applied and Environmental Microbiology. 76, 14, p. 4813-4818
Research output: Research - peer-review › Journal article – Annual report year: 2010

Phylogeny and activity of Proteobacteria in sediments from Lake Furnas
Research output: Research - peer-review › Book chapter – Annual report year: 2010

Presence, distribution, and diversity of iron-oxidizing bacteria at a landfill leachate-impacted groundwater surface water interface
Research output: Research - peer-review › Journal article – Annual report year: 2010

Sequential Aeration of Membrane-Aerated Biofilm Reactors for High-Rate Autotrophic Nitrogen Removal: Experimental Demonstration
Research output: Research - peer-review › Journal article – Annual report year: 2010

Sequential Aeration of Membrane-Aerated Biofilm Reactors (MABRs) Yields for High-Rate Autotrophic Nitrogen Removal: Experimental Demonstration
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2010

Shifts between Nitrospira- and Nitrobacter-like nitrite oxidizers underlie the response of soil potential nitrite oxidation to changes in tillage practices
Research output: Research - peer-review › Journal article – Annual report year: 2010

Surface roughness and limited hydration constrain motility-driven surface colonization by pseudomonads
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2010

The Pressurized Porous Surface Model: An improved tool to study bacterial behavior under a wide range of environmentally relevant matric potentials
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Research output: Research - peer-review › Journal article – Annual report year: 2010

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Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2010

TOL plasmid carriage enhances biofilm formation and increases extracellular DNA content in Pseudomonas putida KT2440
Research output: Research - peer-review › Journal article – Annual report year: 2010
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TOL plasmid invasion is contingent on cell growth and temporary conjugation depression
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Towards successful bioaugmentation with entrapped cells as a soil remediation technology: Effects of the water content and cell dispersal.
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2010

Validation of Structured Model of Complete Autotrophic Nitrogen Removal
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

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Research output: Research › Ph.D. thesis – Annual report year: 2009

Abundance and diversity of microbial communities in long-term aerated anammox biofilm reactors initiated with different inocula
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An Individual-based model to describe horizontal gene transfer in biofilms
Research output: Research › Conference abstract in proceedings – Annual report year: 2009

Enhancing the formation and shear resistance of nitrifying biofilms on membranes by surface modification
Research output: Research › Journal article – Annual report year: 2009

Individual- and population-scale swimming motility on unsaturated surfaces: Experimental quantification and biophysical modeling
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Initial population of ammonia- and nitrite-oxidizing bacteria compromises successful nitrification in a counter-diffusion biofilm geometry
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Mass Action Models Describing Extant Horizontal Transfer of Plasmids: Inferences and Parameter Sensitivities
Research output: Research › Conference abstract in proceedings – Annual report year: 2009
Midrobial community analysis in an autotrophic hollow-fiber membrane-aerated biofilm reactor (HFMBR) treating a high-strength nitrogen wastewater
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2009

Modelling of consortial linuron mineralization in unsaturated porous media
Research output: Research › Conference abstract in proceedings – Annual report year: 2009

Nitrification performance and biofilm development of co- and counter-diffusion biofilm reactors: Modeling and experimental comparison
Research output: Research - peer-review › Journal article – Annual report year: 2009

Nitrogen Removal from Digested Black Water by One-stage Partial Nitritation and Anammox
Research output: Research - peer-review › Journal article – Annual report year: 2009

Oxygen Transfer Model for a Flow-Through Hollow-Fiber Membrane Biofilm Reactor
Research output: Research - peer-review › Journal article – Annual report year: 2009

Plasmid invasion and plasmid persistence in pseudomonas putida biofilm
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2009

Start-up strategies of membrane-aerated biofilm reactor (MABR) for completely autotrophic nitrogen removal
Research output: Research - peer-review › Article in proceedings – Annual report year: 2009

The effect of hydroxylamine on the activity and aggregate structure of autotrophic nitrifying bioreactor cultures
Research output: Research - peer-review › Journal article – Annual report year: 2009

TOL PWW0 transfer dynamics in Pseudomonas putida KT2440

Treatment trains for the remediation of aquifers polluted with MTBE and other xenobiotic compounds
Research output: Research › Ph.D. thesis – Annual report year: 2008

A critical comparison of extant batch respirometric and substrate depletion assays for estimation of nitrification biokinetics
Research output: Research - peer-review › Journal article – Annual report year: 2008
Ammonium removal performance and spatial distribution of nitrifying bacterial populations in autotrophic co- and counter-diffusion biofilms under oxygen limited conditions
Research output: Research - peer-review › Article in proceedings – Annual report year: 2008

Analysis of an Individual-based model describing plasmid transfer in biofilms
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2008

An improved cell recovery method for iron oxidizing bacterial (IOB) enrichments
Research output: Research - peer-review › Journal article – Annual report year: 2008

Antecedent growth conditions alter retention of environmental Escherichia coli isolates in transiently wetted porous media
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Assessing the permissivity of soil microbial communities towards receipt of exogenous mobile elements
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2008

Biokinetic characterization of the acceleration phase in autotrophic ammonia oxidation
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Dynamics of spatial distribution and microbial activity of nitrifying populations in redox-stratified biofilms: Modeling and experimental investigations
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2008

Ecological role of flagellar motility under unsaturated conditions
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Ecological value of swimming motility on variably-saturated surfaces
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Effect of membrane surface functionalization on formation and shear resistance of nitrifying biofilms
Effects of heat-activated persulfate oxidation on soil microorganisms

Heterotrophic activity compromises autotrophic nitrogen removal in membrane-aerated biofilms: Results of a modeling study

Impact of plasmid harboring on biofilm formation and invasion

In situ chemical oxidation as the first part of a sequential remediation for groundwater contamination

Limited diffusive fluxes of substrate facilitate coexistence of two competing bacterial strains
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Microbial population dynamics in redox-stratified biofilms during start-up of autotrophic nitrogen removal reactors

Parameter estimation procedures for an individual-based model describing horizontal gene transfer in biofilms

Redox stratification controlled biofilm reactors for completely autotrophic nitrogen removal

Redox Stratified Controlled Biofilm Reactor for Completely Autotrophic Nitrogen Removal

Start-up strategies for stable autotrophic nitrogen removal in redox-stratification controlled biofilm reactor (ReSCoBiR)

The porous surface model, a novel experimental system for online quantitative observation of microbial processes under unsaturated conditions
The potential for bioremediation after in situ chemical oxidation for the remediation of contaminated soil and groundwater
Research output: Research › Conference abstract in proceedings – Annual report year: 2008

Horizontal gene transfer in pseudomonas putida biofilms
Research output: Research › Poster – Annual report year: 2007

Idynomics: A software platform for modeling microbial communities
Research output: Research › Poster – Annual report year: 2007

Physical constraints affecting bacterial habitats and activity in unsaturated porous media – a review
Research output: Research - peer-review › Journal article – Annual report year: 2007

Proteinaceous surface appendage contribution to Pseudomonas aeruginosa PA01 surface properties and adhesive ability: Abstract 00193
Research output: Research › Journal article – Annual report year: 2007

Redox-stratification controlled biofilm (ReSCoBi) for completely autotrophic nitrogen removal: The effect of co-versus-diffusion on reactor performance
Research output: Research - peer-review › Journal article – Annual report year: 2007

TNT biotransformation: When chemistry confronts mineralization
Research output: Research › Journal article – Annual report year: 2007

Cultivation-dependent and independent examination of conjugative plasmid transfer kinetics
Musovic, S. & Smets, B. F. 2006
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2006

Flow cytometric determination of biomass fractions in activated sludge: nitrification case study
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2006

Intestinal versus external growth conditions change the surficial properties in a collection of environmental Escherichia coli isolates
Research output: Research - peer-review › Journal article – Annual report year: 2006

Mathematial modeling of start-up scenarios for nitrogen removal via a nitritation: anaerobic ammonium oxidation-coupled biofilm in a hollow fiber membrane bioreactor
Research output: Research - peer-review › Poster – Annual report year: 2006
Observation and mathematical description of the acceleration phenomenon in batch respirograms associated with ammonium oxidation
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Oxidation of aminonitrotoluenes by 2,4-DNT dioxygenase of Burkholderia sp. strain DNT
Research output: Research - peer-review › Journal article – Annual report year: 2006

Redox-stratification controlled biofilm for completely autotrophic nitrogen removal: Modeling the effect of substrate co- versus counter-diffusion on performance
Research output: Research - peer-review › Article in proceedings – Annual report year: 2006

Sampling Methods to Determine the Spatial Gradients and Flux of Arsenic at a Groundwater Seepage Zone
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Slow substrate diffusion attenuates bacterial competition and allows bacterial coexistence
Dechesne, A. & Smets, B. F. 2006
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Research output: Research › Journal article – Annual report year: 2005

Attenuation of As transport by iron oxides at the groundwater surface water interface and possible microbial contribution
Research output: Research › Journal article – Annual report year: 2005

Biomass characteristics in three sequencing batch reactors treating a wastewater containing synthetic organic chemicals
Research output: Research - peer-review › Journal article – Annual report year: 2005

Conjugal TOL transfer from Pseudomonas putida to Pseudomonas aeruginosa: Effects of restriction proficiency, toxicant exposure, cell density ratios, and conjugation detection method on observed transfer efficiencies
Research output: Research - peer-review › Journal article – Annual report year: 2005

Effect of long-term exposure, biogenic substrate presence, and electron acceptor conditions on the biodegradation of multiple substituted benzoates and phenolates
Research output: Research - peer-review › Journal article – Annual report year: 2005

Horizontal gene flow in microbial communities: The dynamic microbial gene pool compensates for microbial species clonality, presenting us with both threats and promises
Research output: Research - peer-review › Journal article – Annual report year: 2005

Horizontal gene transfer: Perspectives at a crossroads of scientific disciplines
Macro- and nanoscale observations of adhesive behavior for several E. coli strains (O157:H7 and environmental isolates) on mineral surfaces
Research output: Research - peer-review › Journal article – Annual report year: 2005

Optimizing experimental design to estimate ammonia and nitrite oxidation biokinetic parameters from batch respirometers
Research output: Research - peer-review › Journal article – Annual report year: 2005

Protein engineering of the archetypal nitroarene dioxygenase of Ralstonia sp strain U2 for activity on aminonitrotoluenes and dinitrotoluenes through alpha-subunit residues leucine 225, phenylalanine 350, and glycine 407
Research output: Research - peer-review › Journal article – Annual report year: 2005

Reductive transformation of TNT by Escherichia coli: pathway description
Research output: Research - peer-review › Journal article – Annual report year: 2005

Reductive transformation of TNT by Escherichia coli resting cells: kinetic analysis
Research output: Research - peer-review › Journal article – Annual report year: 2005

Saturation mutagenesis of 2,4-DNT dioxygenase of Burkholderia sp. strain DNT for enhanced dinitrotoluene degradation
Research output: Research - peer-review › Journal article – Annual report year: 2005

Substrate diffusion heterogeneity controls bacterial competition and coexistence
Research output: Research › Journal article – Annual report year: 2005

TNT and nitroaromatic compounds are chemoattractants for Burkholderia cepacia R34 and Burkholderia sp. strain DNT
Research output: Research - peer-review › Journal article – Annual report year: 2005