Research outputs:

**Economic Risk Analysis and Critical Comparison of Biodiesel Production Systems**
Research output: Research - peer-review › Book chapter – Annual report year: 2019

**A methodology for uncertainty analysis of reference equations of state**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**A probabilistic model-based soft sensor to monitor lactic acid bacteria fermentations**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**A Water Treatment Case Study for Quantifying Model Performance with Multilevel Flow Modeling**
Nielsen, E. K., Bram, M. V., Frutiger, J., Sin, G. & Lind, M. 2018 In : Nuclear Engineering and Technology. 50, 4, p. 532-541
Research output: Research - peer-review › Journal article – Annual report year: 2018

**Computer-aided molecular product-process design under property uncertainties – A Monte Carlo based optimization strategy**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**Design and preliminary operation of a hybrid syngas/solar PV/battery power system for off-grid applications: A case study in Thailand**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**Design, Global Sensitivity Analysis and Optimisation of a Counter-current Spray Column for Splitting Triglyceride Mixtures**
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2018

**Dynamic plantwide modeling, uncertainty and sensitivity analysis of a pharmaceutical upstream synthesis: Ibuprofen case study**
Research output: Research - peer-review › Journal article – Annual report year: 2018

**From property uncertainties to process simulation uncertainties – Monte Carlo methods in SimSci PRO/II process simulator**

Land-use planning risk estimates for a chemical industrial park in China - A longitudinal study

Model-based process development for a continuous lactic acid bacteria fermentation

Modeling for Process Risk Assessment in Industrial Bioprocesses

Modelling, Uncertainty and Sensitivity Analysis of the Batch Thermal Hydrolysis of Vegetable Oils

Multiscale Modeling of Poly(lactic acid) Production: From Reaction Conditions to Rheology of Polymer Melt

Organic carbon recovery modeling for a rotating belt filter and its impact assessment on a plant-wide scale

Process Synthesis, Design, and Control of Wastewater Treatment Plants

Property Prediction of Pharmaceuticals for Designing of Downstream Separation Processes

Reverse engineering of working fluid selection for industrial heat pump based on Monte Carlo sampling and uncertainty analysis

Superstructure Optimisation with General Disjunctive Programming and Surrogate Models

Superstructure Optimization of Oleochemical Processes with Surrogate Models
Svovlsyres fortyndingsvarme
Research output: Communication › Journal article – Annual report year: 2018

Uncertainty Analysis of the Experimental Results of Air Conditioner Performance due to Uncertainty of Equation of States
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018

A Consistent Methodology Based Parameter Estimation for a Lactic Acid Bacteria Fermentation Model
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

An Empirical Model for Carbon Recovery In a Rotating Belt Filter and Its Application in the Frame of Plantwide Evaluation
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

A novel fuzzy-logic control strategy minimizing N2O emissions
Research output: Research - peer-review › Journal article – Annual report year: 2017

A novel model-based control strategy for aerobic filamentous fungal fed-batch fermentation processes
Research output: Research - peer-review › Journal article – Annual report year: 2017

Application of a Mechanistic Model as a Tool for On-line Monitoring of Pilot Scale Filamentous Fungal Fermentation Processes - The Importance of Evaporation Effects: Mechanistic model for pilot scale monitoring
Mears, L., Stocks, S. M., Albæk, M. O., Sin, G. & Gernaey, K. V. 2017 In : Biotechnology and Bioengineering. 114, 3, p. 589–599
Research output: Research - peer-review › Journal article – Annual report year: 2016

A review of control strategies for manipulating the feed rate in fed-batch fermentation processes
Mears, L., Stocks, S. M., Sin, G. & Gernaey, K. 2017 In : Journal of Biotechnology. p. 34-46
Research output: Research - peer-review › Review – Annual report year: 2017

A simplified kinetic and mass transfer modelling of the thermal hydrolysis of vegetable oils
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

Biorefinery Sustainability Analysis
Research output: Research - peer-review › Book chapter – Annual report year: 2017

Calibration of the comprehensive NDHA-N2O dynamics model for nitrifier-enriched biomass using targeted respirometric assays
Understanding N\textsubscript{2}O formation mechanisms through sensitivity analyses using a plant-wide benchmark simulation model
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

Using MFM methodology to generate and define major accident scenarios for quantitative risk assessment studies
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017

A Comprehensive Methodology for Development, Parameter Estimation, and Uncertainty Analysis of Group Contribution Based Property Models -An Application to the Heat of Combustion
Frutiger, J., Marcari, C., Abildskov, J. & Sin, G. 2016 In : Journal of Chemical and Engineering Data. 61, 1, p. 602-613
Research output: Research - peer-review › Journal article – Annual report year: 2015

A framework for techno-economic & environmental sustainability analysis by risk assessment for conceptual process evaluation
Research output: Research - peer-review › Journal article – Annual report year: 2016

A methodological approach to the design of optimising control strategies for sewer systems
Research output: Research - peer-review › Journal article – Annual report year: 2016

An integrated knowledge-based and optimization tool for the sustainable selection of wastewater treatment process concepts
Castillo, A., Cheali, P., Gómez, V., Comas, J., Poch, M. & Sin, G. 2016 In : Environmental Modelling & Software. 84, p. 177-192
Research output: Research - peer-review › Journal article – Annual report year: 2016

Assessing the environmental sustainability of early stage design for bioprocesses under uncertainties: An analysis of glycerol bioconversion
Research output: Research - peer-review › Journal article – Annual report year: 2016

Control of wastewater N\textsubscript{2}O emissions by balancing the microbial communities using a fuzzy-logic approach
Research output: Research - peer-review › Article in proceedings – Annual report year: 2016

Data Handling and Parameter Estimation
Research output: Research - peer-review › Book chapter – Annual report year: 2016

Early-Stage Design and Analysis of Biorefinery Networks
Research output: Research - peer-review › Book chapter – Annual report year: 2015
Economic risk analysis and critical comparison of optimal biorefinery concepts
Research output: Research - peer-review • Journal article – Annual report year: 2016

Economic Risk Assessment of Early Stage Designs for Glycerol2Valorization in Biorefinery Concepts
Research output: Research - peer-review • Journal article – Annual report year: 2016

Economic risk-based analysis: Effect of technical and market price uncertainties on the production of glycerol-based isobutanol
Research output: Research - peer-review • Article in proceedings – Annual report year: 2016

Equation of State Selection for Organic Rankine Cycle Modeling Under Uncertainty
Research output: Research - peer-review • Conference abstract for conference – Annual report year: 2016

Forbedring af industrielle processers energieffektivitet
Research output: Communication • Journal article – Annual report year: 2016

Functional Unfold Principal Component Regression Methodology for Analysis of Industrial Batch Process Data
Research output: Research - peer-review • Journal article – Annual report year: 2016

Global sensitivity analysis of computer-aided molecular design problem for the development of novel working fluids for power cycles
Research output: Research - peer-review • Article in proceedings – Annual report year: 2016

Group-Contribution based Property Estimation and Uncertainty analysis for Flammability-related Properties
Research output: Research - peer-review • Journal article – Annual report year: 2016

Group contribution modelling for the prediction of safety-related and environmental properties
Research output: Research - peer-review • Conference abstract for conference – Annual report year: 2016

Mechanistic Models for Process Development and Optimization of Fed-batch Fermentation Systems
Research output: Research - peer-review • Article in proceedings – Annual report year: 2016

Modeling a production scale milk drying process: parameter estimation, uncertainty and sensitivity analysis
Research output: Research - peer-review • Journal article – Annual report year: 2016
Development of Computer Aided Modelling Templates for Model Re-use in Chemical and Biochemical Process and Product Design: Importand export of models
Research output: Research › peer-review › Article in proceedings – Annual report year: 2015

Dynamic Modeling and Validation of a Biomass Hydrothermal Pretreatment Process - A Demonstration Scale Study
Research output: Research › peer-review › Journal article – Annual report year: 2015

Dynamic Modeling, Optimization, and Advanced Control for Large Scale Biorefineries

Estimation and Uncertainty Analysis of Flammability Properties for Computer-aided molecular design of working fluids for thermodynamic cycles
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2015

Estimation and Uncertainty Analysis of Flammability Properties of Chemicals using Group-Contribution Property Models
Frutiger, J., Abildskov, J. & Sin, G. 2015
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2015

Extending the benchmark simulation model nO2 with processes for nitrous oxide production and side-stream nitrogen removal
Research output: Research › peer-review › Article 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

Methods and tools for sustainable chemical process design
Research output: Research › peer-review › Book chapter – Annual report year: 2015

Multivariate analysis of industrial scale fermentation data
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2015

Multivariate Analysis of Industrial Scale Fermentation Data
Research output: Research › peer-review › Article in proceedings – Annual report year: 2015

Novel strategies for control of fermentation processes
Research output: Research › peer-review › Conference abstract for conference – Annual report year: 2015
Optimal Design of Algae Biorefinery Processing Networks for the production of Protein, Ethanol and Biodiesel
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015

Optimal WWTP process selection for treatment of domestic wastewater - A realistic full-scale retrofitting study
Research output: Research - peer-review › Journal article – Annual report year: 2015

Optimization-based methodology for wastewater treatment plant synthesis – a full scale retrofitting case study
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015

Outlier treatment for improving parameter estimation of group contribution based models for upper flammability limit
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015

Regulatory control analysis and design for sewer systems
Research output: Research - peer-review › Journal article – Annual report year: 2015

Sensitivity analysis of Computer-aided molecular design problem for the development of novel working fluids for power cycles
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

Sensitivity analysis of molecular design problem for the development of novel working fluids for power cycles
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

Synthesis and design of optimal biorefinery
Research output: Research › Ph.D. thesis – Annual report year: 2015

Systematic Methods and Tools for Computer Aided Modelling
Research output: Research › Ph.D. thesis – Annual report year: 2015

Systematic network synthesis and design: Problem formulation, superstructure generation, data management and solution
Quaglia, A., Gargalo, C. L., Chairakwongsa, S., Sin, G. & Gani, R. 2015 In : Computers and Chemical Engineering. 72, p. 68-86
Research output: Research - peer-review › Journal article – Annual report year: 2014

Techno-economic risk analysis of glycerol biorefinery concepts against market price fluctuation
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

Uncertainties in early-stage capital cost estimation of process design – a case study on biorefinery design
Research output: Research - peer-review › Journal article – Annual report year: 2015
Upgrading of lignocellulosic biorefinery to value-added chemicals: Sustainability and economics of bioethanol-derivatives
Research output: Research - peer-review › Journal article – Annual report year: 2015

Validation of a functional model for integration of safety into process system design
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015

A computer-aided framework for development, identification and management of physiologically-based pharmacokinetic models
Research output: Research - peer-review › Journal article – Annual report year: 2014

A Dynamic Model for Cellulosic Biomass Hydrolysis: a Comprehensive Analysis and Validation of Hydrolysis and Product Inhibition Mechanisms
Research output: Research - peer-review › Journal article – Annual report year: 2014

A Framework for the Modelling of Biphasic Reacting Systems
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

An integrated approach for synthesis and design of process and water/wastewater networks
Handani, Z. B., Quaglia, A., Sin, G. & Gani, R. 2014
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

An integrated qualitative and quantitative modeling framework for computer-assisted HAZOP studies
Research output: Research - peer-review › Journal article – Annual report year: 2014

An Integrated Systematic Framework to Assist the Development of Pharmaceutical Processes
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

An optimization based framework for design and retrofit of municipal wastewater treatment plants: Case study on sidestream nitrogen removal technologies
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Application of the Generic Modeling Template Approach to Unsaturated Fatty Acid Oxidation and Crystallization Systems.
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014
Application of the Generic Modeling Template Approach to Unsaturated Fatty Acid Oxidation and Crystallization Systems
Fedorova, M., Papadakis, E., Meisler, K. T., Sin, G. & Gani, R. 2014
Research output: Research - peer-review › Poster – Annual report year: 2014

A Simultaneous Optimization Approach for Synthesis and Design of Process and Water Networks
Handani, Z. B., Quaglia, A., Sin, G. & Gani, R. 2014
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

A Simultaneous Optimization Approach for Synthesis and Design of Process and Water Networks
Handani, Z. B., Quaglia, A., Sin, G. & Gani, R. 2014
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Computer-Aided framework for Sustainable Process Design - targeting conceptual and detailed engineering phases
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Computer-Aided Template for Model Reuse, Development and Maintenance
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Cost Estimation for Early-Stage Synthesis and Design of Biorefinery Networks
Cheali, P., Gernaey, K. & Sin, G. 2014
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2014

Development of novel control strategies for single-stage autotrophic nitrogen removal: A process oriented approach
Research output: Research - peer-review › Journal article – Annual report year: 2014

Dynamic Simulation, Sensitivity and Uncertainty Analysis of a Demonstration Scale Lignocellulosic Enzymatic Hydrolysis Process
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Early-stage design of municipal wastewater treatment plants – presentation and discussion of an optimisation based concept
Research output: Research - peer-review › Poster – Annual report year: 2014

Early-stage design of municipal wastewater treatment plants – presentation and discussion of an optimisation based concept
Research output: Research - peer-review › Article in proceedings – Annual report year: 2014

Research output: Research - peer-review › Journal article – Annual report year: 2014

Financial risk analysis in the synthesis and design of processing networks: Balancing risk and return
Hazard identification by extended multilevel flow modelling with function roles.

Industrial process water treatment and reuse: A framework for synthesis and design

Influence of selecting secondary settling tank sub-models on the calibration of WWTP models – A global sensitivity analysis using BSM2

Modelling N2O dynamics in the engineered N cycle: Evaluation of alternate model structures

Ontology for pharmaceutical processes with focus on batch to continuous manufacturing

Significance of settling model structures and parameter subsets in modelling WWTPs under wet-weather flow and filamentous bulking conditions.

Superstructure Development and Optimization under Uncertainty for Design & Retrofit of Municipal Wastewater Treatment Plants.

Synthesis and design of hybrid biorefinery systems a structural optimisation approach and uncertainty analysis

The Ontology System for Easy and Reusable Model Knowledge Representation
Fedorova, M., Sin, G. & Gani, R. 2014

Toward a Computer-Aided Synthesis and Design of Biorefinery Networks: Data Collection and Management Using a Generic Modeling Approach
A Robust Process Analytical Technology (PAT) System Design for Crystallization Processes
Research output: Research - peer-review › Article in proceedings – Annual report year: 2013

A systematic framework for design of process monitoring and control (PAT) systems for crystallization processes
Research output: Research - peer-review › Journal article – Annual report year: 2013

A Systematic Framework for Design of Process Monitoring and Control (PAT) Systems for Crystallization Processes
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2013

A systematic framework for enterprise-wide optimization: Synthesis and design of processing network under uncertainty
Research output: Research - peer-review › Journal article – Annual report year: 2013

A Tool to Support Optimal Industrial Wastewater Treatment Design and Analysis
Research output: Research - peer-review › Conference abstract for conference – 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

Computer-Aided Modeling Framework: A Generic Template as a Modeling Tool
Fedorova, M., Sin, G. & Gani, R. 2013 1 p.
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2013

Computer-aided modeling framework – a generic modeling template
Fedorova, M., Sin, G. & Gani, R. 2013 1 p.
Research output: Research - peer-review › Poster – Annual report year: 2013

Computer-aided modeling framework – a generic modeling template for catalytic membrane fixed bed reactors
Research output: Research - peer-review › Article in proceedings – Annual report year: 2013

Control assessment for heat integrated systems. An industrial case study for ethanol recovery
Mauricio Iglesias, M., Huusom, J. K. & Sin, G. 2013 Chemical Engineering and Processing. 67, p. 60– 70
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 › Article in proceedings – Annual report year: 2013
First principles pharmacokinetic modeling: A quantitative study on Cyclosporin
Research output: Research - peer-review › Journal article – Annual report year: 2013

Hazard Identification of the Offshore Three-phase Separation Process Based on Multi-level Flow Modeling and HAZOP
Research output: Research - peer-review › Article in proceedings – Annual report year: 2013

Integrated control of the wastewater system – potentials and barriers
Research output: Research - peer-review › Journal article – Annual report year: 2013

Introducing uncertainty analysis of nucleation and crystal growth models in Process Analytical Technology (PAT) system design of crystallization processes
Research output: Research - peer-review › Journal article – Annual report year: 2012

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

Modelling and L1 Adaptive Control of pH in Bioethanol Enzymatic Process
Research output: Research - peer-review › Article in proceedings – Annual report year: 2013

Modelling and L1 Adaptive Control of Temperature in Biomass Pretreatment
Research output: Research - peer-review › Article in proceedings – 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

Molecular structure based property modeling: Development/ improvement of property models through a systematic property-data-model analysis
Research output: Research - peer-review › Poster – Annual report year: 2013

Molecular structure based property modeling: Development/ improvement of property models through a systematic property-data-model analysis
Research output: Research - peer-review › Article in proceedings – 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
Advanced sensitivity and uncertainty analysis for computer-aided process engineering
Sin, G. 2012
Research output: Research › Conference abstract for conference – Annual report year: 2012

A framework for model-based optimization of bioprocesses under uncertainty: Lignocellulosic ethanol production case
Research output: Research - peer-review › Journal article – Annual report year: 2011

Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Research output: Research › Conference abstract for conference – Annual report year: 2012

A Model-Based and a Multi-Objective Optimisation Framework for Incremental Scale-Up of Bioreactors
Mauricio Iglesias, M. & Sin, G. 2012
Research output: Research › Conference abstract for conference – Annual report year: 2012

An integrated knowledge-based framework for synthesis and design of enterprise-wide processing networks
Research output: Research › Paper – Annual report year: 2012

An operation protocol for facilitating start-up of single-stage autotrophic nitrogen removing reactors based on process stoichiometry
Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

An operation protocol for facilitating start-up of single-stage autotrophic nitrogen removing reactors based on process stoichiometry
Research output: Research › Sound/Visual production (digital) – Annual report year: 2012

A simulation based engineering method to support HAZOP studies
Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

A Systematic Approach for Optimized Water Allocation Through Solution of Large Scale Water/Wastewater Networks Problems
Quaglia, A., Pennati, A., Sin, G. & Gani, R. 2012
Research output: Research › Conference abstract for conference – Annual report year: 2012

A Systematic Approach to Controlling the Sewer System
Research output: Research › Sound/Visual production (digital) – Annual report year: 2012

A Systematic Framework for Synthesis and Design of Multi-Scale Processing Networks Using Incremental-Based Solution Strategy
Quaglia, A., Shishmarev, M., Sarup, B., Sin, G. & Gani, R. 2012
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012
Estimation of Properties of Pure Components Using Improved Group-Contribution+ (GC+) Based Models and Uncertainty Analysis

Research output: Research › Conference abstract for conference – Annual report year: 2012

Experiences on dynamic simulation software in chemical engineering education

Research output: Research - peer-review › Journal article – Annual report year: 2012

Extension of computer aided solvent selection and design framework - organic solvents for phase transfer catalysis and solvent selection and solvent mixture design for pharmaceutical applications

Mitrofanov, I., Abildskov, J., Sin, G. & Gani, R. 2012
Research output: Research › Conference abstract for conference – Annual report year: 2012

Group Contribution+ (GC+) Based Estimation of Environment-Related Properties for Design of Sustainable Processes: Development of Property Models and Uncertainty Analysis

Research output: Research › Conference abstract for conference – Annual report year: 2012

Group-contribution+ (GC+) based estimation of properties of pure components: Improved property estimation and uncertainty analysis

Research output: Research - peer-review › Journal article – Annual report year: 2012

Incremental design of control system of SHARON-Anammox process for autotrophic nitrogen removal

Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Integrated Business and Engineering Framework for Synthesis and Design of Enterprise-Wide Processing Networks

Research output: Research - peer-review › Journal article – Annual report year: 2011

Model-based analysis of control performance in sewer systems

Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Modelling and control design for SHARON/Anammox reactor sequence

Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Molecular structure based physical properties modelling

Cunico, L., Hukkerikar, A., Sin, G. & Gani, R. 2012
Research output: Research › Conference abstract for conference – Annual report year: 2012

Multi-enzyme Process Modeling

Andrade Santacoloma, P. D. G., Woodley, J., Gernaey, K. & Sin, G. 2012 Technical University of Denmark, Department of Chemical Engineering. 197 p.
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

Sensitivity of Process Design due to Uncertainties in Property Estimates
Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Sensitivity of process design to uncertainties in property estimates applied to extractive distillation
Research output: Research › Conference abstract for conference – Annual report year: 2012

Separation of azeotropic mixtures
Fernández, E. B., Gani, R. & Sin, G. 2012
Research output: Research › Conference abstract for conference – Annual report year: 2012

Solventpro: The Solvent Selection and Design Framework
Mitrofanov, I., Sin, G. & Gani, R. 2012
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

State-of-the-art and progress in the optimization-based simultaneous design and control for chemical processes
Research output: Research - peer-review › Journal article – Annual report year: 2012

Synthesis and Design of Processing Networks: Stochastic Formulation and Solution
Research output: Research - peer-review › Article in proceedings – Annual report year: 2012

Synthesis and Design of Processing Networks: Decision Making Under Uncertainty
Quaglia, A., Sin, G., Gani, R. & Sarup, B. 2012
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2012

Synthesis and design of processing networks: decision making under uncertainty and sensitivity analysis
Research output: Research › Conference abstract for conference – Annual report year: 2012

Synthesis and Design of Processing Networks: Stochastic Formulation and Solution
Quaglia, A., Sarup, B., Sin, G. & Gani, R. 2012
Research output: Research - peer-review › Poster – Annual report year: 2012

Systematic Multi-Scale Model Development Strategy for the Fragrance Spraying Process and Transport
Heitzig, M., Rong, Y., Gregson, C., Sin, G. & Gani, R. 2012 In : Chemical Engineering and Technology. 35, 8, p. 1381-1391
Research output: Research - peer-review › Journal article – Annual report year: 2012

Temperature Modelling of the Biomass Pretreatment Process
Research output: Research - peer-review › Article in proceedings – Annual report year: 2012
Application of computer-aided multi-scale modelling framework – Aerosol case study
Heitzig, M., Sin, G., Glarborg, P. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Application of the Morris method for screening the influential parameters of fuzzy controllers applied to WWTPs
Research output: Research - peer-review › Journal article – Annual report year: 2011

A systematic framework for CAFD and resources allocation optimisation using MINLP in vegetable oil processing
Quaglia, A., Sarup, B., Sin, G. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

A Systematic Methodology for the Assessment and Troubleshooting of Control Strategies and Operational Problems In Distillation Systems
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

A Systematic Methodology for Uncertainty Analysis of Group Contribution Based and Atom Connectivity Index Based Models for Estimation of Properties of Pure Components
Hukkerikar, A., Sarup, B., Sin, G. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Building a multilevel modeling network for lipid processing systems
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Building a Multilevel Modeling Network for Lipid Processing Systems
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Computer Aided Flowsheet Synthesis and Design Under Uncertainty In Vegetable Oil Production
Quaglia, A., Sarup, B., Sin, G. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Computer-aided modeling for efficient and innovative product-process engineering
Heitzig, M., Gani, R., Sin, G. & Glarborg, P. 2011 Technical University of Denmark, Department of Chemical Engineering. 286 p.
Research output: Research › Ph.D. thesis – Annual report year: 2012

Computer-aided modeling framework for efficient model development, analysis and identification: Combustion and reactor modeling
Heitzig, M., Sin, G., Sales Cruz, M., Glarborg, P. & Gani, R. 2011 In : Industrial & Engineering Chemistry Research. 50, 9, p. 5253-5265
Research output: Research - peer-review › Journal article – Annual report year: 2011

Computer Aided Solvent Selection and Design Framework
Mitrofanov, I., Conte, E., Abildskov, J., Sin, G. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Computer-Aided Solvent Selection Framework
Mitrofanov, I., Sin, G. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011
Development of Property Models with Uncertainty Estimate for Process Design under Uncertainty
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Dynamic Model-Based Evaluation of Process Configurations for Integrated Operation of Hydrolysis and Co-Fermentation for Bioethanol Production from Lignocellulose
Research output: Research - peer-review › Journal article – Annual report year: 2011

Estimation of Properties of Pure Components Using Improved Group Contribution Based and Atom Connectivity Index Based Models and Uncertainty Analysis
Hukkerikar, A., Sarup, B., Sin, G. & Gani, R. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Framework for Construction of Multi-scale Models for Biological Wastewater Treatment Processes
Research output: Research - peer-review › Journal article – Annual report year: 2011

Framework for Construction of Multi-scale Models for Biological Wastewater Treatment Processes - Case Study: Autotrophic Nitrogen Conversion
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Global sensitivity analysis in wastewater treatment plant model applications: Prioritizing sources of uncertainty
Research output: Research - peer-review › Journal article – Annual report year: 2011

Integration of Generic Multi-dimensional Model and Operational Policies for Batch Cooling Crystallization
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Integration of Generic Multi-dimensional Model and Operational Policies for Batch Cooling Crystallization
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Integration of Generic Multi-dimensional Model and Operational Policies for Batch Cooling Crystallization
Research output: Research - Conference abstract for conference – Annual report year: 2011

Lipid Processing Technology: Building a Multilevel Modeling Network
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Methodological Approach for Modeling of Multienzyme in-pot Processes
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Methodological Approach for Modeling of Multienzyme in-pot Processes
Andrade Santacoloma, P. D. G., Roman Martinez, A., Sin, G., Gernaey, K. & Woodley, J. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011
Micro2-Managed Microbial Communities: Next Generation Environmental Bio/Technologies
2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Model-based engineering for product-process design - dealing with uncertainties
Research output: Research - peer-review › Book chapter – Annual report year: 2011

Modeling framework for multi-enzyme in-pot processes applied in amine production
Andrade Santacoloma, P. D. G., Sin, G., Gernaey, K. & Woodley, J. 2011
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Modelling and control of heat-integrated distillation columns: An industrial case study
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Modelling Framework for the Identification of Critical Variables and Parameters under Uncertainty in the Bioethanol Production from Lignocellulose
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Modelling Framework for the Identification of Critical Variables and Parameters under Uncertainty in the Bioethanol Production from Lignocellulose
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2011

Model predictive control for plant-wide control of a reactor-separation-recycle system
Bialas, D. J., Huusom, J. K., Jørgensen, J. B. & Sin, G. 2011
Research output: Research - peer-review › Poster – Annual report year: 2011

Modified calibration protocol evaluated in a model-based testing of SBR flexibility
Research output: Research - peer-review › Journal article – Annual report year: 2011

Multi-enzyme catalyzed processes: Next generation biocatalysis
Research output: Research - peer-review › Journal article – Annual report year: 2011

Multivariate Principal Component Analysis and Case-Based Reasoning for monitoring, fault detection and diagnosis in a WWTP
Research output: Research - peer-review › Journal article – Annual report year: 2011

Significance of uncertainties derived from settling tank model structure and parameters on predicting WWTP performance - A global sensitivity analysis study
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011
Wastewater treatment models
Research output: Research › Book chapter – Annual report year: 2011

A computer-aided framework for regression and multi-scale-modelling needs in innovative product-process engineering
Heitzig, M., Sin, G., Glarborg, P. & Gani, R. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

A Dynamic Model for Cellulosic Biomass Hydrolysis: Validation of Hydrolysis and Product Inhibition Mechanism
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

A New Extant Respirometric Assay to Estimate Intrinsic Growth Parameters Applied to Study Plasmid Metabolic Burden
Research output: Research › Journal article – Annual report year: 2010

Application of Decomposition Methodology to Solve Integrated Process Design and Controller Design Problem for Reactor-Separator-Recycle System
Research output: Research › Article in proceedings – Annual report year: 2010


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


Abd. Hamid, M-K., Sin, G. & Gani, R. 2010

Research output: Research › Sound/Visual production (digital) – Annual report year: 2010


Abd. Hamid, M-K., Sin, G. & Gani, R. 2010

Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Application of mechanistic models to fermentation and biocatalysis for next-generation processes


Research output: Research › peer-review › Journal article – Annual report year: 2010

Assessing Reliability of Cellulose Hydrolysis Models to Support Biofuel Process Design – Identifiability and Uncertainty Analysis


Research output: Research › peer-review › Journal article – Annual report year: 2010

A systematic approach for fine-tuning of fuzzy controllers applied to WWTPs


Research output: Research › peer-review › Journal article – Annual report year: 2010

Computer-Aided Modelling for Efficient and Innovative Product-Process Engineering


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

Computer-Aided Modelling for Efficient and Innovative Product-Process Engineering

Heitzig, M., Sin, G., Glarborg, P. & Gani, R. 2010

Research output: Research › Poster – Annual report year: 2010

Concepts in multi-step biocatalysis

Woodley, J., Andrade Santacoloma, P. D. G., Vennestrom, P. N. R., Sin, G. & Gernaey, K. 2010

Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Controlled fed-batch operation for enzymatic cellulose hydrolysis in 2G bioethanol production

Morales Rodriguez, R., Capron, M., Huusom, J. K. & Sin, G. 2010

Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Controlled fed-batch operation for enzymatic cellulose hydrolysis in 2G bioethanol production


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

Controlled fed-batch operation for enzymatic cellulose hydrolysis in 2G bioethanol production


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

Control of Process Operations and Monitoring of Product Qualities through Generic Model-based in Batch Cooling Crystallization

Abdul Samad, N. A. F., Singh, R., Sin, G., Gernaey, K. & Gani, R. 2010

Research output: Research › Sound/Visual production (digital) – Annual report year: 2010
Control of Process Operations and Monitoring of Product Qualities through Generic Model-based in Batch Cooling Crystallization
Research output: Research › peer-review › Article in proceedings – Annual report year: 2010

Development of a mathematical model describing hydrolysis and co-fermentation of C6 and C5 sugars
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Development of a mathematical model describing hydrolysis and co-fermentation of C6 and C5 sugars
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Dynamic plant-wide modelling for bioethanol production from lignocellulosic biomass (2G)
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Feasibility of the batch fermentation process of Ricotta Cheese Whey (RCW)
Sansonetti, S., Curcio, S., Calabrò, V., Sin, G. & Iorio, G. 2010 Chemical Engineering Transaction. Vol. 20, p. 79-84
Research output: Research › peer-review › Article in proceedings – Annual report year: 2010

From lab experiments to plant operation and design: Bioethanol production from lignocellulose using different enzyme technologies
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

ICAS-MoT, a Computer-Aided Modeling Tool
Heitzig, M., Sin, G., Glarborg, P. & Gani, R. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Integrated Dynamic Plant-Wide Model-Based Simulation of Bioethanol Production from Lignocellulose
Research output: Research › Article in proceedings – Annual report year: 2010

Integrated Dynamic Plant-Wide Model-Based Simulation of Bioethanol Production from Lignocellulose
Research output: Research › Poster – Annual report year: 2010

Integrated Dynamic Plant-Wide Model-Based Simulation of Bioethanol Production from Lignocellulose
Research output: Research › Poster – Annual report year: 2010

Integration of process design and controller design for chemical processes using model-based methodology
Research output: Research - peer-review › Journal article – Annual report year: 2010

IWA Design and Operational Uncertainty Task Group: Document and evaluate existing methods for assessing and evaluating uncertainty in wastewater treatment
Sprouse, G., McCormick, J., Schraa, O. & Sin, G. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010
Managing Multi-Scale Modeling Issues in Chemical Engineering - a Computer-Aided Framework
Heitzig, M., Sin, G., Glarborg, P. & Gani, R. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Model predictive control for plant-wide control of a reactor-separator-recycle system
Bialas, D. J., Huusom, J. K., Jørgensen, J. B. & Sin, G. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Model predictive control for reactor-separator-recycle system
Research output: Research › Article in proceedings – Annual report year: 2010

Model predictive control for reactor-separator-recycle system
Bialas, D. J., Huusom, J. K., Jørgensen, J. B. & Sin, G. 2010
Research output: Research › Poster – Annual report year: 2010

New concepts for multi-enzymatic synthetic processes
Research output: Research › Article in proceedings – Annual report year: 2010

New concepts for multi-enzymatic synthetic processes
Andrade Santacoloma, P. D. G., Sin, G., Gernaey, K. & Woodley, J. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

New concepts for multi-enzymatic synthetic processes
Andrade Santacoloma, P. D. G., Sin, G., Gernaey, K. & Woodley, J. 2010
Research output: Research › Poster – Annual report year: 2010

Perspectives on the use of global uncertainty and sensitivity analysis methods in a PAT context
Sin, G., Eliasson Lantz, A. & Gernaey, K. 2010
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Process Technology Evaluation for Lignocellulosic Bioethanol Production: Plantwide Configurations Using a Dynamic Modeling Approach
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Sensitivity analysis in the WWTP modelling community – new opportunities and applications
Research output: Research › Sound/Visual production (digital) – Annual report year: 2010

Sensitivity analysis in the WWTP modelling community – new opportunities and applications
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

Sensitivity Analysis of a Kinetic Model Describing the Bi-enzymatic Synthesis of Lactobionic Acid
Research output: Research - peer-review › Article in proceedings – Annual report year: 2010

Sensitivity Analysis of a Kinetic Model Describing the Bi-enzymatic Synthesis of Lactobionic Acid
Andrade Santacoloma, P. D. G., Sin, G., Gernaey, K. & Woodley, J. 2010
Sensitivity and uncertainty analysis: Expanding engineering toolbox for science-based decision making
Sin, G. 2010

Systematic method and tool for design, analysis &/or validation of PAT systems
Singh, R., Abdul Samad, N. A. F., Sin, G., Gernaey, K. & Gani, R. 2010

Systematic model development for partial nitrification of landfill leachate in a SBR

Uncertainty in modelling, design and operation of chemical processes
Sin, G. 2010

Uncertainty in modelling, design and operation of chemical processes

Validation of Structured Model of Complete Autotrophic Nitrogen Removal

A Computer-Aided Modelling Tool for Efficient Model Identification and Analysis
Heitzig, M., Sin, G., Glarborg, P. & Gani, R. 2009

A Computer-Aided Tool for Applying the Multiscale Modelling Needs In Innovative Product-Process Engineering

A Model-Based Methodology for Simultaneous Design and Control of a Bioethanol Production Process

A Model-Based Methodology for Simultaneous Design and Control of a Bioethanol Production Process

A new model-based methodology for simultaneous design and control of reaction-separation systems with recycle
Abd.Hamid, M-K., Sin, G. & Gani, R. 2009

A New Model-Based Methodology for Simultaneous Design and Control of Reaction-Separation System with Recycle

Application of ICAS-PAT On Design of Process Monitoring and Control System for a Batch Cooling Crystallization Process through Hybrid Multiscale Model-Based Analysis
Abdul Samad, N. A. F., Singh, R., Sin, G., Gernaey, K. & Gani, R. 2009 Application of modeling and simulation tools for the evaluation of biocatalytic processes: a future perspective
Research output: Research - peer-review › Journal article – Annual report year: 2009

Sin, G., Gernaey, K. & Woodley, J. 2009 A priori regression analysis for the calibration of complex dynamic models: application to an integrated biological, chemical and physical model of antibiotic production with S. coelicolor
Research output: Research - peer-review › Article in proceedings – Annual report year: 2009

Sin, G. & Gernaey, K. 2009 Determination of optimal design and control decisions for reactor-separator systems with recycle
Research output: Research - peer-review › Poster – Annual report year: 2009

Development of An Integrated Dynamic Model for Bioethanol Production From Lignocellulosic Biomass
Research output: Research - peer-review › Journal article – Annual report year: 2009

Good Modeling Practice for PAT Applications: Propagation of Input Uncertainty and Sensitivity Analysis
Sin, G., Gernaey, K. & Eliasson Lantz, A. 2009
Research output: Research - peer-review › Journal article – Annual report year: 2009

Improving the Morris method for sensitivity analysis by scaling the elementary effects
Sin, G. & Gernaey, K. 2009
Research output: Research - peer-review › Journal article – Annual report year: 2009

Improving the Morris method for sensitivity analysis by scaling the elementary effects
Sin, G. & Gernaey, K. 2009
Research output: Research - peer-review › Article in proceedings – Annual report year: 2009

Introducing mechanistic models in Process Analytical Technology education
Gernaey, K., Woodley, J. & Sin, G. 2009
Research output: Research - peer-review › Journal article – Annual report year: 2009
Lægemiddelproduktion - brugen af modellering og PAT
Research output: Communication › Journal article – Annual report year: 2009

Mechanistic models and advanced model analysis within a PAT framework
Gernaey, K., Woodley, J., Eliasson Lantz, A. & Sin, G. 2009
Research output: Research › peer-review › Poster – Annual report year: 2009

Modelling, Simulation and Optimization of Single-Cell Protein Production in a U-Loop Reactor
Research output: Research › Sound/Visual production (digital) – Annual report year: 2009

Multi-criteria decision making under uncertainty: Energy efficient and low-carbon wastewater treatment (keynote lecture)
Sin, G. 2009
Research output: Research › Sound/Visual production (digital) – Annual report year: 2009

Reliability of Cellulose Hydrolysis Models to Support Biofuel Process Design - Identifiability and Uncertainty Analysis
Sin, G. 2009
Research output: Research › Sound/Visual production (digital) – Annual report year: 2009

Sensitivity Analysis of a Two-Enzyme One-Pot System for Production of Lactobionic Acid
Andrade Santacoloma, P. D. G., Sin, G., Gernaey, K. & Woodley, J. 2009
Research output: Research › peer-review › Poster – Annual report year: 2009

Sensitivity analysis of non-linear dynamic models: Prioritizing experimental research
Sin, G., Eliasson Lantz, A. & Gernaey, K. 2009
Research output: Research › Sound/Visual production (digital) – Annual report year: 2009

Sensitivity Analysis of Non-Linear Dynamic Models: Prioritizing Experimental Research
Research output: Research › peer-review › Article in proceedings – Annual report year: 2009

Systematic framework for modeling multi-enzymatic synthetic processes
Andrade Santacoloma, P. D. G., Sin, G., Gernaey, K. & Woodley, J. 2009
Research output: Research › peer-review › Poster – Annual report year: 2009

Systematic model development for partial nitrification of landfill leachate in a SBR
Research output: Research › Sound/Visual production (digital) – Annual report year: 2009

Uncertainty analysis in WWTP model applications: a critical discussion using an example from design
Research output: Research › peer-review › Journal article – Annual report year: 2009

Uncertainty and sensitivity analysis of control strategies using the benchmark simulation model No1 (BSM1)
Research output: Research › peer-review › Journal article – Annual report year: 2009

Wastewater treatment modelling: dealing with uncertainties
Practical identifiability of complex fermentation models: a systematic approach
Sin, G. & Gernaey, K. 2008
Research output: Research › Sound/Visual production (digital) – Annual report year: 2008

Uncertainty analysis in WWTP model applications: a critical discussion of issues using a design example
Research output: Research › Sound/Visual production (digital) – Annual report year: 2008

Uncertainty and sensitivity analysis of control strategies using the benchmark simulation model no 1 (BSM1)
Flores Alsina, X., Sin, G., Rodríguez-Roda, I. & Gernaey, K. 2008
Research output: Research › Article in proceedings – Annual report year: 2008

Wastewater Treatment Models
Research output: Research › peer-review › Book chapter – Annual report year: 2008

Experimental data quality and quantity influence on parameter estimation accuracy: Andrews inhibition model as a case study
In : Education for Chemical Engineers. 1, p. 139-145
Research output: Research › peer-review › Journal article – Annual report year: 2007

Extensions to modeling aerobic carbon degradation using combined respirometric–titrimetric measurements in view of activated sludge model calibration
Sin, G. & Vanrolleghem, P. A. 2007
In : Water Research. 41, 15, p. 3345-2258
Research output: Research › peer-review › Journal article – Annual report year: 2007

Modelling van riuolwaterzuiveringsinstallaties
Gernaey, K. & Sin, G. 2007
In : Afvalwaterwetenschap. 6, 4, p. 224-233
Research output: Communication › Journal article – Annual report year: 2007

Parameter subset selection for the dynamic calibration of activated sludge models (ASMs): experience versus systems analysis
Ruano, M. V., Ribes, J., de Pauw, D. J. W. & Sin, G. 2007
In : Water Science and Technology. 56, 8, p. 107-115
Research output: Research › peer-review › Journal article – Annual report year: 2007

A calibration methodology and model-based systems analysis for SBRs removing nutrients under limited aeration conditions
In : Journal of Chemical Technology and Biotechnology. 81, 4, p. 679-687
Research output: Research › peer-review › Journal article – Annual report year: 2006

Application of a model-based optimisation methodology for nutrient removing SBRs leads to falsification of the model
In : Water Science and Technology. 53, 4-5, p. 95-103
Research output: Research › peer-review › Journal article – Annual report year: 2006

Evaluation of the impacts of model-based operation of SBRs on activated sludge microbial community
In : Water Science and Technology. 54, 1, p. 157-166
Research output: Research › peer-review › Journal article – Annual report year: 2006
Evolution of an ASM2d-like model structure due to operational changes of an SBR process
Research output: Research - peer-review › Journal article – Annual report year: 2006

Model-based evaluation of an on-line control strategy for SBRs based on OUR and ORP measurements
Research output: Research - peer-review › Journal article – Annual report year: 2006

Simple modification to describe the soil water retention curve between saturation and oven dryness
Research output: Research - peer-review › Journal article – Annual report year: 2006

A critical comparison of systematic calibration protocols for activated sludge models: A SWOT analysis
Research output: Research - peer-review › Journal article – Annual report year: 2005

A new approach for modelling simultaneous storage and growth processes for activated sludge systems under aerobic conditions
Research output: Research - peer-review › Journal article – Annual report year: 2005

Limitations of ASM1 and ASM3: A comparison based on batch oxygen uptake rate profiles from different CD full-scale wastewater treatment plants
Research output: Research - peer-review › Journal article – Annual report year: 2006

A nitrate biosensor based methodology for monitoring anoxic activated sludge activity
Research output: Research - peer-review › Journal article – Annual report year: 2004

Modeling off a large-scale wastewater treatment plant for efficient operation
Research output: Research - peer-review › Journal article – Annual report year: 2004

Optimal but robust N and P removal in SBRs: a model-based systematic study of operation scenarios
Research output: Research - peer-review › Journal article – Annual report year: 2004

An integrated sensor for the monitoring of aerobic and anoxic activated sludge activities in biological nitrogen removal plants
Research output: Research - peer-review › Journal article – Annual report year: 2003

Projects:

ModLife: Advancing Modelling for Process-Product Innovation, Optimization, Monitoring and Control in Life Science Industries
01/11/2015 → 31/10/2019
Project: Research
**Sustainable Process Synthesis and Design**
Ai, R., Sin, G., Gernaey, K. V. & Zubov, A.
Marie Curie (EU-stipendium)
01/05/2017 → 30/04/2020
Project: PhD

**Advanced Modelling, Simulation and Optimization for in Silivo Process Design**
Öner, M., Sin, G., Abildskov, J., Gernaey, K. V., Shibabaw Molla, G., Stocks, S. M. & Freitag, M. F.
Samfinansieret - Andet
01/01/2017 → 31/12/2019
Project: PhD

**Functional Modeling of water treatment system**
Nielsen, E. K., Ravn, O., Lind, M. & Sin, G.
Eksternt finansieret virksomhed
01/10/2016 → 30/09/2019
Project: PhD

**A Decision Support Tool for Screening Novel WWT Processes**
Behera, C. R., Sin, G. & Gernaey, K. V.
Forskningsrådssponsor
15/08/2016 → 14/08/2019
Project: PhD

**A Decision Support Tool for Screening Novel WWT Processes**
Behera, C. R., Sin, G. & Gernaey, K. V.
Forskningsrådssponsor
15/08/2016 → 14/08/2019
Project: PhD

**Thermodynamic modelling and data evaluation for life sciences applications**
Ruszczynski, L., Abildskov, J., Sin, G. & Zubov, A.
Marie Curie (EU-stipendium)
01/05/2016 → 30/04/2019
Project: PhD

**Validation and Improvement of Property and Process Modelling for Oleochemicals**
Ansat eksternt
01/06/2016 → 31/05/2019
Project: PhD

**In-silico Process Design and Evaluation Tool for Pharmaceutical Manufacturing**
do Carmo Montes, F. D. C., Sin, G. & Gernaey, K. V.
Marie Curie (EU-stipendium)
15/04/2016 → 14/04/2019
Project: PhD

**Design and optimization of selected oleochemical processes**
Jones, M. N., Sin, G., Gernaey, K. V. & Sarup, B.
Ansat eksternt
15/04/2016 → 14/04/2019
Project: PhD

**Bioprocess risk assessment using a mechanistic modelling framework**
Marie Curie (EU-stipendium)
01/08/2015 → 31/07/2018
Project: PhD

The implementation of anammox in a full-scale industrial waste-water treatment plant
Samfinansierede - Virksomhed
01/04/2015 → 31/07/2018
Project: PhD

Computer-aided molecular design of novel working fluids to optimize heat transfer processes
Forskningsrådsfinansiering
01/06/2014 → 25/08/2017
Project: PhD

Exploring biochemical process performance limits through topology optimization
Grundforskningsfonden
01/12/2012 → 16/06/2016
Project: PhD

Modelling and Optimization of Energy Systems for Off-Shore Platforms
Nguyen, T., Elmegaard, B., Haglind, F., Sin, G., Angelo, P. & de Oliveira Júniör, S.
Institut, samfinansiering
01/11/2011 → 26/01/2015
Project: PhD

Performance Monitoring, Diagnosis and Advanced Control for Bio-Refinery
Prunescu, R. M., Blanke, M., Jakobsen, J. G., Sin, G., Huusom, J. K., Liden, G. & Skogestad, S.
ErhvervsPhD-ordningen VTU
01/04/2012 → 17/02/2016
Project: PhD

Optimizing control of the integrated urban wastewarter system
ErhvervsPhD-ordningen VTU
01/08/2011 → 10/11/2015
Project: PhD

Control of Process Operations and Monitoring of Product Qualities through Hybrid Multi-Scale Model-Based Analysis
Stipendie fra udlandet
01/01/2009 → 21/11/2012
Project: PhD

Integration of Modelling, Design and Control for Efficient Operation of chemical Processes
Stipendie fra udlandet
01/07/2007 → 13/04/2011
Project: PhD

Multi-enzyme process modelling
Andrade Santacoloma, P. D. G., Woodley, J., Gernaey, K. V., Sin, G., Jørgensen, S. B., Pedersen, S. & Vasic-Racki, D.
Institut stipendie (DTU) Samf.
01/11/2008 → 27/06/2012
Project: PhD
Systematic Methods and Tools for Computer Aided Modeling
Anden EU-finansiering
01/04/2012 → 02/09/2015
Project: PhD

Sustainable design of biorefinery systems for biorenewables
Marie Curie (EU-stipendium)
15/11/2013 → 25/08/2017
Project: PhD

Tailor-made design of chemical products: Bio-fuels and other blended products
Yunus, N. A. B., Gani, R., Gernaey, K. V., Woodley, J., Sin, G., Harper, P. M. & Kate, A. J. B. T.
Stipendie fra udlandet
15/07/2010 → 07/05/2014
Project: PhD

Integrated framework for synthesis and design of multi-product biorefinery networks
Cheali, P., Sin, G., Gernaey, K. V., Huusom, J. K., Mogensen, J. & Zondervan, E.
Institut stipendie (DTU) Samf.
01/05/2012 → 01/07/2015
Project: PhD

Model Based Integrated Process-Product Design - retrofitting and optimisation
Ansat ekstern
01/07/2010 → 30/09/2013
Project: PhD

Computer-aided modelling for efficient and innovative product-process engineering
Heitzig, M., Gani, R., Glarborg, P., Sin, G., Gernaey, K. V., Piccione, P. M. & Pistikopoulos, S.
Institut stipendie (DTU)
01/12/2008 → 18/04/2012
Project: PhD

Validation of Structures Model for Autotrophic Nitrogen Removal in High Strength Wastewater
1/3 FUU, 1/3 inst 1/3 Andet
01/09/2010 → 12/11/2013
Project: PhD

Plantwide modelling and control for N2O emissions from WWTP
Samfinansieret - Andet
01/10/2013 → 14/12/2016
Project: PhD

Incremental refinement of process design
Quaglia, A., Sin, G., Gani, R., Sarup, B., Jørgensen, J. B., Bode, A. & Pistikopoulos, E. N.
Marie Curie (EU-stipendium)
01/06/2010 → 30/09/2013
Project: PhD
Sustainable assessment of full chain bioenergy production
Institut/centerfinansieret
01/12/2012 → 05/04/2017
Project: PhD

Computer aided framework for synthesis, design and retrofit of water networks in processing industries
1/3 FUJ, 1/3 inst 1/3 Andet
16/12/2011 → 13/05/2015
Project: PhD

Establishment and calibration of consensus process models of N2O dynamics
Domingo-Felez, C., Smets, B. F., Plósz, B. G., Sin, G., Gernaey, K. V., Plaza, E., Sperandio, M., Plaza, E. & Sperandio, M.
Samfinansieret - Andet
15/12/2013 → 30/08/2017
Project: PhD

Molecular and Microbial Analysis of Nitritation/Anammox Aggregates towards Optimization of Autotrophic Nitrogen Removal in Membrane Bioreactors
Mutlu, A. G., Smets, B. F., Sin, G., Plósz, B. G., Joss, A. & Wilén, B.
Institut stipendie (DTU) Samf.
01/01/2011 → 27/05/2015
Project: PhD

Novel Strategies for Fermentation Control
Samfinansierede - Virksomhed
01/12/2013 → 15/03/2017
Project: PhD

Modelling and Simulation of Wastewater Treatment Plants
Marie Curie (EU-stipendium)
01/05/2012 → 01/07/2015
Project: PhD

Computer Modelling of Lipid Processing Technology
1/3 DTU-stip, 2/3 FUR/andet
01/05/2008 → 29/11/2011
Project: PhD

THERMCYC: Advanced thermodynamic cycles utilising low-temperature heat sources
01/03/2014 → 28/02/2019
Project: Research

Integrated modelling for simulation and design of novel enzymatic processes
Sin, G.
Forskningsprojekter - Andre ministerier og styrelser
01/02/2008 → 31/07/2010
Project: Research
Activities:

Feasibility-test of a complete autotrophic nitrogen removal process treating the effluent of an industrial anaerobic digester
Feldman, H. (Other), Flores Alsina, X. (Other), Kasper Kjellberg (Other), Blum, J. (Other), Valverde Pérez, B. (Other), Sin, G. (Other), Smets, B. F. (Other), Gernaey, K. V. (Other)
9 May 2017 → 12 May 2017
Activity: Talks and presentations › Conference presentations

Modelling Methane, Sulphide and Multiple Mineral Precipitation in a Full-Scale Industrial Granular Anaerobic Digester
Feldman, H. (Other), Flores Alsina, X. (Other), Kasper Kjellberg (Other), Sin, G. (Other), Gernaey, K. V. (Other)
9 May 2017 → 12 May 2017
Activity: Talks and presentations › Conference presentations

In-Silico Tailoring Properties of Polylactide
Zubov, A. (Speaker), Sin, G. (Other)
13 Nov 2016 → 18 Nov 2016
Activity: Talks and presentations › Conference presentations

Model Based Optimization of an Industrial Wastewater Treatment Plant Combining a Full-scale Granular Sludge Reactor and Autotrophic Nitrogen Removal
Feldman, H. (Other), Neda Faraghi Parapari (Other), Sille Bendix Larsen (Other), Kasper Kjellberg (Other), Flores Alsina, X. (Other), Sin, G. (Other), Ulf Jeppsson (Other), Gernaey, K. V. (Other)
Activity: Talks and presentations › Conference presentations

A Tool to Support Optimal Industrial Wastewater Treatment Design and Analysis
Sin, G. (Lecturer)
24 Apr 2013 → 26 Apr 2013
Activity: Talks and presentations › Conference presentations

Design of future municipal wastewater treatment plants: A mathematical approach to manage complexity and identify optimal solutions
Sin, G. (Lecturer)
24 Apr 2013 → 26 Apr 2013
Activity: Talks and presentations › Conference presentations

Computer-aided modeling framework: a generic template as a modeling tool
Sin, G. (Speaker)
20 Apr 2013 → 25 Apr 2013
Activity: Talks and presentations › Conference presentations

Efficient Information and Data Management in Synthesis and Design of Processing Networks
Sin, G. (Lecturer)
20 Apr 2013 → 25 Apr 2013
Activity: Talks and presentations › Conference presentations

Biorefinery Öresund Conference 'Biorefining from raw material to high value products'
Cheali, P. (Speaker), Gernaey, K. V. (Speaker), Sin, G. (Speaker)
1 May 2012 → 30 Apr 2015
Activity: Talks and presentations › Conference presentations

Press clippings:

Modeling for production of bacterial cultures
Gürkan Sin & Krist V. Gernaey
02/11/2018
1 media contribution
Press/Media: Press / Media