Scientific Computing - Publications - DTU Orbit (11/06/2018)

A Convex Reconstruction Model for X-ray Tomographic Imaging with Uncertain Flat-fields
Aggrawal, H. O., Andersen, M. S., Rose, S. & Sidky, E. Y. 2018 In : I E E E Transactions on Computational Imaging. 4, 1, p. 17-31
Publication: Research - peer-review › Journal article – Annual report year: 2018

A spectral geometric model for Compton single scatter in PET based on the single scatter simulation approximation: Paper
Publication: Research - peer-review › Journal article – Annual report year: 2018

Comparison of linear and non-linear monotonicity-based shape reconstruction using exact matrix characterizations
Garde, H. 2018 In : Inverse Problems in Science and Engineering. 26, 1, p. 33-50
Publication: Research - peer-review › Journal article – Annual report year: 2018

Computing segmentations directly from x-ray projection data via parametric deformable curves: Paper
Publication: Research - peer-review › Journal article – Annual report year: 2018

Deformable Curves for Outlining Objects Directly From Projections
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2018

Effects of additive noise on formation of spatial patterns in an activator-inhibitor system
Publication: Research - peer-review › Journal article – Annual report year: 2018

Iterative Reconstruction Methods for Inverse Problems in Tomography with Hybrid Data
Publication: Research › Ph.D. thesis – Annual report year: 2018

Joint image reconstruction method with correlative multi-channel prior for x-ray spectral computed tomography: Paper
Kazantsev, D., Jørgensen, J. S., Andersen, M. S., Lionheart, W. R. B., Lee, P. D. & Withers, P. J. 2018 In : Inverse Problems. 34, 6, 064001
Publication: Research - peer-review › Journal article – Annual report year: 2018

Lamé Parameter Estimation from Static Displacement Field Measurements in the Framework of Nonlinear Inverse Problems
Publication: Research - peer-review › Journal article – Annual report year: 2018

Models and Methods for Dynamic Computed Tomography.
Publication: Research › Ph.D. thesis – Annual report year: 2018

Monotonicity and enclosure methods for the p-Laplace equation
Publication: Research - peer-review › Journal article – Annual report year: 2018

Near-wellbore modeling of a horizontal well with Computational Fluid Dynamics
Publication: Research - peer-review › Journal article – Annual report year: 2018
Overnight glucose control in people with type 1 diabetes
Publication: Research - peer-review › Journal article – Annual report year: 2018

Screening wells by multi-scale grids for multi-stage Markov Chain Monte Carlo simulation
Publication: Research - peer-review › Journal article – Annual report year: 2018

Segmentation-Driven Tomographic Reconstruction.
Publication: Research › Ph.D. thesis – Annual report year: 2018

Spectral/hp element methods: Recent developments, applications, and perspectives
Publication: Research - peer-review › Journal article – Annual report year: 2018

Stable source reconstruction from a finite number of measurements in the multi-frequency inverse source problem
Karamehmedovic, M., Kirkeby, A. & Knudsen, K. 2018 In : Inverse Problems. 34, 24 p., 065004
Publication: Research - peer-review › Journal article – Annual report year: 2018

The Generalized Multipole Technique for the Simulation of Low-Loss Electron Energy Loss Spectroscopy
Publication: Research - peer-review › Book chapter – Annual report year: 2018

Unmatched Projector/Backprojector Pairs: Perturbation and Convergence Analysis
Publication: Research - peer-review › Journal article – Annual report year: 2018

Evaluation of pharmacokinetic model designs for subcutaneous infusion of insulin aspart
Publication: Research - peer-review › Journal article – Annual report year: 2017

Cauchy Noise Removal by Nonconvex ADMM with Convergence Guarantees
Publication: Research - peer-review › Journal article – Annual report year: 2017

Adaptive control in an artificial pancreas for people with type 1 diabetes
Publication: Research - peer-review › Journal article – Annual report year: 2016

Adaptive Unscented Kalman Filter using Maximum Likelihood Estimation
Publication: Research - peer-review › Conference article – Annual report year: 2017

A deep learning approach to adherence detection for type 2 diabetics
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017
Bounds on the stably recoverable information for the Helmholtz equation in \( \mathbb{R}^2 \)
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

C code generation applied to nonlinear model predictive control for an artificial pancreas
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Comparison of three control strategies for optimization of spray dryer operation
Publication: Research - peer-review › Journal article – Annual report year: 2017

Computation of Phase Equilibrium and Phase Envelopes
Publication: Research - peer-review › Report – Annual report year: 2017

Cross-Validation of a Glucose-Insulin-Glucagon Pharmacodynamics Model for Simulation using Data from Patients with Type 1 Diabetes
Publication: Research - peer-review › Journal article – Annual report year: 2017

Data Descriptor: A multiscale imaging and modelling dataset of the human inner ear
Publication: Research - peer-review › Journal article – Annual report year: 2017

Design, economics and parameter uncertainty in dynamic operation of post-combustion CO2 capture using piperazine (PZ) and MEA
Publication: Research - peer-review › Conference article – Annual report year: 2016

Directional Total Generalized Variation Regularization for Impulse Noise Removal
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Distinguishability Revisited: Depth Dependent Bounds on Reconstruction Quality in Electrical Impedance Tomography: Depth dependent bounds on reconstruction quality in electrical impedance tomography
Publication: Research - peer-review › Journal article – Annual report year: 2017

Distributed primal–dual interior-point methods for solving tree-structured coupled convex problems using message-passing
Khoshfetrat Pakazad, S., Hansson, A., Andersen, M. S. & Nielsen, I. 2017 In : Optimization Methods and Software. 32, 3, p. 401-435
Publication: Research - peer-review › Journal article – Annual report year: 2016

Distributed Semidefinite Programming with Application to Large-scale System Analysis
Publication: Research - peer-review › Journal article – Annual report year: 2018
Dynamic Optimization of UV Flash Processes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Economic MPC based on LPV model for thermostatically controlled loads
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Economic Optimizing Control for Single-Cell Protein Production in a U-Loop Reactor
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Fault and meal detection by redundant continuous glucose monitors and the unscented Kalman filter
Publication: Research - peer-review › Journal article – Annual report year: 2017

Finite volume method room acoustic simulations integrated into the architectural design process
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2017

Hardware Tailored Linear Algebra for Implicit Integrators in Embedded NMPC.
Publication: Research - peer-review › Conference article – Annual report year: 2017

Helbredstjek af dansk sundhedsteknologi: Sektorudviklingsrapport
Publication: Commissioned › Report – Annual report year: 2017

Image fusion and denoising using fractional-order gradient information
Publication: Research › Report – Annual report year: 2017

Image reconstruction under non-Gaussian noise
Publication: Research › Ph.D. thesis – Annual report year: 2017

Implementation of advanced process control on the four tank pilot plant
Publication: Research › Report – Annual report year: 2017

LBAS: Lanczos Bidiagonalization with Subspace Augmentation for Discrete Inverse Problems
Publication: Research › Report – Annual report year: 2017

Linear discrete-time state space realization of a modified quadruple tank system with state estimation using Kalman filter
Model for Simulating Fasting Glucose in Type 2 Diabetes and the Effect of Adherence to Treatment.
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Modeling Pharmacokinetics and Pharmacodynamics of Glucagon for Simulation of the Glucoregulatory System in Patients with Type 1 Diabetes.
Publication: Research › Ph.D. thesis – Annual report year: 2017

Modeling surface imperfections in thin films and nanostructured surfaces
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Multilevel techniques for Reservoir Simulation
Publication: Research › Ph.D. thesis – Annual report year: 2017

Multiple shooting applied to robust reservoir control optimization including output constraints on coherent risk measures
Publication: Research - peer-review › Journal article – Annual report year: 2017

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Publication: Research - peer-review › Journal article – Annual report year: 2018

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

Offset Risk Minimization for Open-loop Optimal Control of Oil Reservoirs
Capolei, A., Christiansen, L. H. & Jørgensen, J. B. 2017 In : IFAC-PapersOnLine. 50, 1, p. 10620-10625
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Polynomial Collocation for Handling an Inaccurately Known Measurement Configuration in Electrical Impedance Tomography
Publication: Research - peer-review › Journal article – Annual report year: 2017

Random walks with statistical shape prior for cochlea and inner ear segmentation in micro-CT images
Publication: Research - peer-review › Journal article – Annual report year: 2017
Reducing artifacts from varying projection truncations
Borg, L., Jørgensen, J. S., Frikel, J., Quinto, E. T. & Sporring, J. 2017
Publication: Research › Paper – Annual report year: 2018

Reduction of variable-truncation artifacts from beam occlusion during in situ x-ray tomography: Paper
Borg, L., Jørgensen, J. S., Frikel, J. & Sporring, J. 2017 In : Measurement Science and Technology. 28, 12, 19 p., 124004
Publication: Research - peer-review › Journal article – Annual report year: 2017

Relationship between Optimum Mini-doses of Glucagon and Insulin Levels when Treating Mild Hypoglycaemia in Patients with Type 1 Diabetes - A Simulation Study
Publication: Research - peer-review › Journal article – Annual report year: 2017

Simulating clinical studies of the glucoregulatory system: in vivo meets in silico
Publication: Research › Report – Annual report year: 2017

SparseBeads data: benchmarking sparsity-regularized computed tomography
Publication: Research - peer-review › Journal article – Annual report year: 2017

Stochastic derivation and solution of simplified radiative transfer using the Fokker-Planck equation
Linder-Steinlein, K., Chen, X. & Karamehmedovic, M. 2017
Publication: Research - peer-review › Poster – Annual report year: 2017

The Adjoint Method for Gradient-based Dynamic Optimization of UV Flash Processes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Tomographic image reconstruction using training images
Publication: Research - peer-review › Journal article – Annual report year: 2016

Tomographic Reconstruction Methods for Decomposing Directional Components
Publication: Research › Report – Annual report year: 2017

Total Variation Based Parameter-Free Model for Impulse Noise Removal
Sciacchitano, F., Dong, Y. & Andersen, M. S. 2017 In : Numerical Mathematics-theory Methods and Applications. 10, 1, p. 186-204
Publication: Research - peer-review › Journal article – Annual report year: 2017

Towards characterizing and reducing artifacts caused by varying projection truncation
Publication: Research › Report – Annual report year: 2017

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Validation of a Simulation Model Describing the Glucose-Insulin-Glucagon Pharmacodynamics in Patients with Type 1 Diabetes
Publication: Research › Poster – Annual report year: 2017

A Hierarchical Algorithm for Integrated Scheduling and Control With Applications to Power Systems
Publication: Research - peer-review › Journal article – Annual report year: 2017

Algorithms and Methods for High-Performance Model Predictive Control
Publication: Research › Ph.D. thesis – Annual report year: 2016

An analytic mapping property of the Dirichlet-to-Neumann operator in Helmholtz boundary problems
Karamehmedovic, M. 2016
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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

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Publication: Research › Report – Annual report year: 2016

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Application of the Continuous-Discrete Extended Kailman Filter for Fault Detection in Continuous Glucose Monitors for Type 1 Diabetes
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Contrast Invariant SNR
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Controllability and flexibility analysis of CO2 post-combustion capture using piperazine and MEA
Publication: Research - peer-review › Journal article – Annual report year: 2016

Convergence analysis for column-action methods in image reconstruction
Publication: Research - peer-review › Journal article – Annual report year: 2016

Convergence and regularization for monotonicity-based shape reconstruction in electrical impedance tomography
Publication: Research - peer-review › Journal article – Annual report year: 2016

DeRisk - Accurate prediction of ULS wave loads. Outlook and first results
Publication: Research - peer-review › Conference article – Annual report year: 2016

Development of a numerical modelling tool for combined near field and far field wave transformations using a coupling of potential flow solvers
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Distributed Model Predictive Control for Smart Energy Systems
Publication: Research - peer-review › Journal article – Annual report year: 2016

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Publication: Research - peer-review › Conference article – Annual report year: 2016

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Efficient uncertainty quantification of a fully nonlinear and dispersive water wave model with random inputs
Publication: Research - peer-review › Journal article – Annual report year: 2016

Enzymes in CO2 Capture
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High-definition velocity-space tomography of fast-ion dynamics
Publication: Research - peer-review › Journal article – Annual report year: 2016

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

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

Large-scale Optimization of Contoured Beam Reflectors and Reflectarrays
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Limited Data Problems for the Generalized Radon Transform in $\mathbb{R}^n$
Publication: Research - peer-review › Journal article – Annual report year: 2016

Methods and Algorithms for Economic MPC in Power Production Planning
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Model Identification using Continuous Glucose Monitoring Data for Type 1 Diabetes
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Publication: Research › Ph.D. thesis – Annual report year: 2016

Modeling and Prediction Using Stochastic Differential Equations
Modelling of glucose-insulin-glucagon pharmacodynamics in man
Publication: Research - peer-review › Book chapter – Annual report year: 2016

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Multi-region Statistical Shape Model for Cochlear Implantation
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Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2016

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016
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Publication: Research › Report – Annual report year: 2016

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Publication: Research › Book – Annual report year: 2016

Prior Information in Inverse Boundary Problems
Publication: Research › Ph.D. thesis – Annual report year: 2016

Protein Structure Refinement by Optimization
Publication: Research › Ph.D. thesis – Annual report year: 2016

Random walks with shape prior for cochlea segmentation in ex vivo μCT
Publication: Research - peer-review › Journal article – Annual report year: 2016

Robust Numerical Methods for Nonlinear Wave-Structure Interaction in a Moving Frame of Reference
Publication: Research › Ph.D. thesis – Annual report year: 2016

Simultaneous Reconstruction and Segmentation with Class-Specific Priors
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Sparsity prior for electrical impedance tomography with partial data
Publication: Research - peer-review › Journal article – Annual report year: 2015

Spectral Tensor-Train Decomposition
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Time-explicit methods for joint economical and geological risk mitigation in production optimization
Publication: Research - peer-review › Journal article – Annual report year: 2016

Unstructured Spectral Element Model for Dispersive and Nonlinear Wave Propagation
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Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

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Adaptive spectral tensor-strain decomposition for the construction of surrogate models
Bigoni, D., Engsig-Karup, A. P. & Marzouk, Y. M. 2015
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Publication: Research - peer-review › Journal article – Annual report year: 2015

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Publication: Research › Ph.D. thesis – Annual report year: 2015

Analysis of Electrically Large Antennas using Fast Physical Optics
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

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Schmidt, S., Boiroux, D., Ranjan, A., Jørgensen, J. B., Madsen, H. & Nørgaard, K. 2015 In: Therapeutic Delivery. 6, 5, p. 211-221
Publication: Research - peer-review › Journal article – Annual report year: 2015

A novel tuning approach for offset-free MPC
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Publication: Research › Report – Annual report year: 2015
Modeling and Simulation of a Modified Quadruple Tank System
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

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

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Multilevel techniques lead to accurate numerical upscaling and scalable robust solvers for reservoir simulation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

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Publication: Research - peer-review › Journal article – Annual report year: 2015

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Numerical Modeling of Microelectrochemical Systems
Publication: Research › Ph.D. thesis – Annual report year: 2015

On analytic continuability of the missing Cauchy datum for Helmholtz boundary problems
Publication: Research - peer-review › Journal article – Annual report year: 2015

On artifacts in limited data spherical Radon transform: curved observation surface
Barannyk, L. L., Frikel, J. & Nguyen, L. V. 2015 In : Inverse Problems. 32, 1, 32 p., 015012
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On Devising Boussinesq-type Equations with Bounded Eigenspectra: Two Horizontal Dimensions
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Pairs of dual Gabor frames generated by functions of Hilbert-Schmidt type
Christiansen, L. H. 2015 In : Advances in Computational Mathematics. 41, 6, p. 1101-1118
Publication: Research - peer-review › Journal article – Annual report year: 2015

Pharmacokinetics Modeling of Glucagon and a Novel Glucagon Analogue after Subcutaneous Administration in Dogs
Publication: Research › Poster – Annual report year: 2015
**Profit and Risk Measures in Oil Production Optimization**
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

**Real-time nonlinear MPC and MHE for a large-scale mechatronic application**
Publication: Research - peer-review › Journal article – Annual report year: 2015

**Reconstruction Methods for Inverse Problems with Partial Data**
Publication: Research › Ph.D. thesis – Annual report year: 2015

**Relaxed Simultaneous Tomographic Reconstruction and Segmentation with Class Priors for Poisson Noise**
Publication: Research › Report – Annual report year: 2015

**Remarks on models for estimating the carbohydrate to insulin ratio and insulin sensitivity in T1DM**
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

**Simultaneous tomographic reconstruction and segmentation with class priors**
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**Sparse acoustic imaging with a spherical array**
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**Sparse DOA estimation with polynomial rooting**
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**Stability patterns for a size-structured population model and its stage-structured counterpart**
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**Studies of Sensitivity in the Dictionary Learning Approach to Computed Tomography: Simplifying the Reconstruction Problem, Rotation, and Scale**
Publication: Research › Report – Annual report year: 2015

**Testable uniqueness conditions for empirical assessment of undersampling levels in total variation-regularized X-ray CT**
The contribution of glucagon in an Artificial Pancreas for people with type 1 diabetes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

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A Decomposition Algorithm for Mean-Variance Economic Model Predictive Control of Stochastic Linear Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

A Mean-Variance Criterion for Economic Model Predictive Control of Stochastic Linear Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

A mean–variance objective for robust production optimization in uncertain geological scenarios
Publication: Research - peer-review › Journal article – Annual report year: 2014

An algorithm for total variation regularized photoacoustic imaging
Publication: Research - peer-review › Journal article – Annual report year: 2014

Analysis of efficient preconditioned defect correction methods for nonlinear water waves
Publication: Research - peer-review › Journal article – Annual report year: 2014

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

A non-linear wave decomposition model for efficient wave–structure interaction. Part A: Formulation, validations and analysis
Publication: Research - peer-review › Journal article – Annual report year: 2014

Application of Constrained Linear MPC to a Spray Dryer
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Application of incremental algorithms to CT image reconstruction for sparse-view, noisy data
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

A Realistic Process Example for MIMO MPC based on Autoregressive Models
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Assessment of Model Predictive and Adaptive Glucose Control Strategies for People with Type 1 Diabetes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

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

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Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Efficient Implementation of Solvers for Linear Model Predictive Control on Embedded Devices
**Gaussian translation operator for Multi-Level Fast Multipole Method**

**Generalized Row-Action Methods for Tomographic Imaging**

**High-performance small-scale solvers for linear Model Predictive Control**

**Improved Multilevel Fast Multipole Method for Higher-Order discretizations**

**Input-constrained model predictive control via the alternating direction method of multipliers**

**Interior Point Methods on GPU with application to Model Predictive Control**

**Iso-geometric shape optimization of magnetic density separators**

**Iterative Reconstruction Methods for Hybrid Inverse Problems in Impedance Tomography**

**Mathematical Modeling and Dimension Reduction in Dynamical Systems**

**Modelling and computation for nanoparticle reconstruction using Electron Energy Loss Spectroscopy**

**Model Predictive Control for Smart Energy Systems**

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**Publication details:**
Semi-convergence properties of Kaczmarz's method
Publication: Research - peer-review › Journal article – Annual report year: 2014

Sensitivity Analysis of the Critical Speed in Railway Vehicle Dynamics
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