

CURICULUM VITAE

PERSONAL INFORMATION

Name: Sébastien Gros
Nationality: Swiss
Date of birth: 23.05.1977

Professional addresses:

Department of Engineering Cybernetic
Faculty of Information Technology
Norwegian University of Technology, NTNU
NO-7491 Trondheim, Norway

Department of Electrical Engineering
Chalmers University of Technology
Automatic Control research group
SE-412 96 Göteborg, Sweden

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EDUCATION

MSc Thesis, Mechatronics, Ecole Polytechnique Fédérale de Lausanne (EPFL), 2001

PhD Thesis, “Neighboring Extremals in Optimization & Control”, 2007
Dept. of Mechanical Engineering, Control Laboratory, Ecole Polytechnique Fédérale de Lausanne (EPFL),
supervision by Prof. D. Bonvin.

POSITIONS

Full Professor at Department of Eng. Cybernetic, NTNU (Norwegian University of Technology), 2019-present

Guest Professor at Department of Electrical Engineering, Chalmers University of Technology, 2019-present

Associate Professor at Department of Electrical Engineering, Chalmers University of Technology, 2016-2018

Guest Researcher at Freiburg Institute of Advance Studies (FRIAS), Junior Fellow, Freiburg, Germany, 2016

Assistant Professor at Department of Signals and Systems, Chalmers University of Technology, 2013-2016

Post-Doctoral position at OPTEC / KU Leuven, 2011 – 2013 under the supervision of Prof. M. Diehl

R&D Engineer at MLS-Control, wind energy industry, Glasgow, UK, 2010-2011

SUPERVISION

COMPLETED PHD THESIS

“Structure-exploiting optimization methods for Model Predictive Control”, E. Klintberg, Chalmers, 2013-2017

ONGOING PHD THESIS

“Classification and Optimal Management of 2nd life of EV Batteries”, under recruitment, Chalmers, 2019 - expected 2023

“A new generation of algorithms for power-train control”, Anand Ganessian, Chalmers, 2018 - expected 2023

“Adaptive Li-ion battery modeling for high-performance usage”, under recruitment, Chalmers, 2019 - expected 2021

“Integration of Airborne Wind Energy Systems in the Power Grid”, E. Malz, Chalmers, 2015 - expected 2020

“Formal Reinforcement Learning via Optimal Control”, under recruitment, 2019, NTNU

POST-DOC PROJECTS

“Integration of renewable energies in the power system”, J. Vasilj, Chalmers, 2016-2017

“Real-time Economic NMPC for optimal wind turbine control”, M. Abdollahpouri, Chalmers, 2017-2018

“Real-time Economic NMPC for optimal wind turbine control”, J. A.L. Pachó Chalmers, 2017-present

“Service Optimization of Charging Stations using Machine Learning”, S. Bae, Chalmers, 2018-present

CO-SUPERVISION

PHD THESIS

“NMPC for Aerospace Applications“, M. Zanon, KU Leuven, 2011-2015

“Identification of Nonlinear Black-Box State Space Model”, G. Giordano, Chalmers, 2013-2018

“Low-order Aerodynamic Models in Multi-Kite Optimal Control Problems” R. Leuthold, Albert-Ludwigs-Universität Freiburg, 2016 - present

“Optimization-based strategies for coordination of autonomous vehicles”, R. Hult, 2014-2019, Chalmers

“Operational Energy Network Management for Electric Buses”, under recruitment, Chalmers, 2019 - present

“Machine Learning and Model Predictive Control”, 2018 - present, NTNU

SUPERVISION TRAINING

CHALMERS SUPERVISION FORUM – 2016

CHALMERS SUPERVISION FORUM – 2015

CHALMERS SUPERVISION OF RESEARCH – 2015

CHALMERS LEADERSHIP PROGRAM – 2013-2014

PEDAGOGICAL TRAINING & EVALUATION

CHALMERS PHILOSOPHY OF LEARNING – 2017

CHALMERS PHILOSOPHY OF SCIENCE – 2016

CHALMERS PEDAGOGICAL COURSE – 2015-2016

TEACHING EVALUATION from the Language Teaching Centre at Albert-Ludwigs-Universität Freiburg on the PhD course “Numerical Optimal Control with Differential-Algebraic Equations”, February 2016

TEACHING EXPERIENCE

BACHELOR COURSES

“Control Theory” for Electrical Engineers, 2016 (about 80 students), teaching grade: 4.21 / 5.0

“Control Theory” for Electrical Engineers, 2015 (about 80 students), teaching grade: 3.84 / 5.0

“Control Theory” for Electrical Engineers, 2014 (about 80 students), teaching grade: 4.03 / 5.0

“Control Theory” for Electrical Engineers, 2013 (about 80 students), teaching grade: 3.4 / 5.0

MASTER COURSES

“Modeling and Simulation” for Electrical Engineers, 2018 (about 200 students), teaching grade: 3.6 / 5.0

“Modeling and Simulation” for Electrical Engineers, 2017 (about 200 students, the course was entirely re-created by me), teaching grade: 3.3 / 5.0

PHD COURSES

“Optimal Control based on Reinforcement Learning”, Technical University of München, for PhD students and faculty members, 2018, about 15 students

“Numerical Optimal Control”, Norwegian University of Technology (NTNU), for PhD students and faculty members, 2018, about 30 students

“Introduction to Reinforcement Learning”, Chalmers, for PhD students, faculty members and industrial visitors, 2017, in collaboration with Prof. L. Svensson, about 80 students

“Advanced Topics in Optimal Control”, Technical University of München, for PhD students and faculty members, 2017, about 20 students

“Numerical Optimal Control”, Norwegian University of Technology (NTNU), for PhD students and faculty members, 2016, about 20 students

“Numerical Optimal Control with Differential-Algebraic Equations”, Albert-Ludwigs-Universität Freiburg, for international PhD students and academics, 2016, about 60 students

“Direct Optimal Control” for PhD students and industrial visitors, Chalmers, about 10 students, 2015

“Direct Optimal Control” for PhD students and industrial visitors, Chalmers, about 10 students, 2014

INDUSTRIAL COURSES

“System Identification”, Volvo, 2019

“System Identification”, Volvo, 2018

“Introduction to Optimal Control & NMPC”, Chalmers Professional Education, 2019

RECENT INVITED SEMINARS

“Direct Optimal Control: Introduction, recent results and applications”, Optimization of Dynamical Systems, PhD summer school "Optimization of Dynamical Systems", Center for Industrial Mathematics, University of Bremen, 2018

“Direct Shooting Methods”, Optimal Control of ODEs, PhD summer school "Optimal Control with Differential Equations", INP-ENSEEIH, Toulouse, 2018

"Getting the true optimal policy using wrong models. A Modifier Approach for dynamic processes using Economic NMPC and Reinforcement Learning ", invited contribution at the ECC Workshop: Control and optimization of industrial processes, 2018

"Récent progrès en contrôle optimal numérique en temps réel", Institut National Polytechnique de Toulouse (INP-ENSEEIH), France, 2017

"Recent progress in direct solution methods for optimal control, Economic NMPC and applications of distributed MPC", Schlumberger Gould Research Center, Cambridge, UK, 2017

"Recent progress in direct solution methods for optimal control with applications to distributed MPC", Imperial College, London, UK, 2017

"Optimal Investment Strategies in Micro-grids", University of Freiburg, Germany, 2016

"Some Recent Progress in Optimal Control for Energy Applications", University of Freiburg, Germany, 2015

"Airborne Wind Energy, Past, Present & Future", University of Freiburg, Germany, 2015

"Some recent developments in fast NMPC & MHE, with application to wind turbine control", University of Linköping, Sweden, 2015

"Fast Implicit Integrators for Real-time NMPC with Application to Wind Energy", EPFL, Switzerland, 2015

GRANTS

Co-author and PI for the EU - Marie Curie Individual Fellowship CEGUM: Coordination for Efficient and Green Mobility - one Post-Doc position was given to Dr. A. Dabiri under my supervision

Co-author and co-recipient of the proposal "Integration of Airborne Wind Energy in the future power system", Chalmers Area of Advance - Energy, 2018 (2.1MSEK)

Co-author and co-recipient of the proposal "Operational Energy Network Management for Electric Buses" (OPNET), granted by Swedish Energimyndigheten, 2018 (4MSEK)

Main author of the proposal "Service Optimization of Charging Stations using Machine Learning" in collaboration with Volvo truck, granted by the Swedish Electromobility Center (SEC), 2018 (1MSEK)

Main author of the proposal "Classification and Optimal Management of 2nd life EV batteries", 2018, in collaboration with Volvo truck, granted by Energimyndigheten (4MSEK)

Main author of the proposal "A new generation of algorithms for modern powertrains", in collaboration with Volvo Car, granted by Swedish FFI, 2018 (4.2MSEK).

Main author of the DAWESO project on the integration of Airborne Wind Energy into the European power grid, 2017 (0.3MSEK)

Co-author and co-recipient of an FFI grant, funding a PhD position (co-supervision Prof. Torsten Vik) on the adaptive modeling of high-performance batteries for electric mobility, 2017, Swedish Batteriefonden (4.3MSEK).

Co-author and co-recipient of the project Eco4Wind on the control of wind turbine based on NMPC, in collaboration with several universities and companies. Two post-doc positions have been allotted to Chalmers under my supervision, 2017 (6MSEK)

Co-author and co-recipient of the AWESCO EU-ITN project 2016-2019, on the topic of optimization of Airborne Wind Energy systems. One PhD position was allotted to Chalmers under my supervision (3MSEK)

OPPONENT/COMMITTEE MEMBER IN PHD DEFENSES

"Fast and Distributed Model Predictive Control", Ruben Van Parys, KU Leuven 2018 (committee)

"Model Predictive Control in Flight Control Design: Stability and Reference Tracking", Daniel, Linköping, 2017 (committee)

"Model predictive load-frequency control", Anne Mai Ersdal, Norwegian University of Science and Technology (NTNU), 2017 (opponent)

"Contrôle optimal géométrique et méthodes numériques : application au problème de montée d'un avion", Damien Goubinat, INP Toulouse, France, 2017 (rapporteur)

"Multi-Robot Motion Planning Optimisation for Handling Sheet Metal Parts", Emile Glorieux, University West Trollhättan, Sweden, 2017 (committee)

"Structure-Exploiting Numerical Algorithms for Optimal Control", Isak Nielsen, Linköping University, Sweden, 2017 (committee)

"Model Predictive Control in Flight Control Design: Stability and Reference Tracking", Daniel Simon, Licenciate, Linköping, 2014 (opponent)

"Low-Rank Distributed Control with Application to Wind Energy", Daria Madidjan, Lund, 2014 (committee)

EDITORIAL SERVICES

Subject Editor for the journal *Optimal Control Application and Methods*, 2016-2017

Member of the Program Committee for the Conference on Decision and Control 2019

LANGUAGES

- English: professional
- Swedish: conversational level
- Norwegian: beginner
- German: beginner - light conversational
- French: native

EXTRA-PROFESSIONAL ACHIEVEMENT

Project Un-peu-plus-loin (2008-2009): cycled from Switzerland to the Everest base camp (22'000km) alone and in full autonomy through some of the highest and most inhospitable regions of the world, in support of the "Foundation Nicole Niquille" (FNN) running a hospital in Nepal for the locals of the Solukhumbu District.

PERSONAL INTERESTS

- Gliding: 150-200h per year in Norway, Sweden, France, Germany, Switzerland, Italy, Czech Republic
- Ski touring, cross-country skiing, cycling, mountain biking, hiking

REFERENCES

PROF. MORITZ DIEHL

Systems Control and Optimization Laboratory and Department of Mathematics
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PROF. DOMINIQUE BONVIN

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PROF. BO EGARDT

Department of Electrical Engineering
Chalmers, Göteborg, Sweden
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LIST OF PUBLICATIONS

Journals (peer-reviewed)

1. **Data-driven Economic NMPC using Reinforcement Learning**, S. Gros, M. Zanon, *Transaction on Automatic Control*, 2019
2. **Rare-Event Chance-constrained Optimal Control Using Polynomial Chaos and Subset Simulation**, P.

- Piprek, S. Gros, F. Holzapfel, MDPI Process, Computational Methods, 2019
3. **Dual-mode Batch-to-batch Optimization as a Markov Decision Process**, S. Gros, Ind. & Eng. Chemistry Research, 2019
 4. **A reference model for airborne wind energy systems for optimization and control**, E. C. Malz, J. Koenemann, S. Sieberling, S. Gros, Renewable Energy, 2019
 5. **A dual Newton strategy for tree-sparse quadratic programs and its implementation in the open-source software treeQP**, D. Kouzoupis, E. Klintberg, G. Frison, S. Gros, M. Diehl, International Journal of Robust and Nonlinear Control, 2019
 6. **Voltage and power prediction of lithium-ion batteries using an extended model and dynamic optimization**, B. Fridholm, T. Wik, S. Gros, C. Zou, and A. Klintberg, Journal of Power Sources, vol. 2018
 7. **Super-short Term Wind Speed Prediction based on Artificial Neural Networks for Wind Turbine Control Applications**, J. Luna, S. Gros, J. Geisler, O. Falkenberg, A. Schild, IECON 2018.
 8. **Optimal Coordination of Automated Vehicles at Intersections: Theory and Experiments**, R. Hult, M. Zanon, S. Gros, P. Falcone, IEEE Transactions on Control Systems Technology 2019
 9. **An improved method for Wiener-Hammerstein system identification based on the Fractional Approach**, G. Giordano, S. Gros, J. Sjöberg, Automatica 2018
 10. **Day-ahead scheduling and real-time Economic MPC of CHP unit in Micro-grid with Smart buildings**, J. Vasilj, S. Gros, M. Zanon, D. Jakus, Transactions on Smart Grid, 2018
 11. **A dual Newton strategy for scenario decomposition in robust multi-stage MPC**, D. Kouzoupis, E. Klintberg, S. Gros and M. Diehl, International Journal of Robust and Nonlinear Control, 2018
 12. **Numerical Optimal Control with Periodicity Constraints in the Presence of Invariants**, S. Gros, M. Zanon, Transaction on Automatic Control, 2018.
 13. **Inexact Newton-Type Optimization with Iterated Sensitivities**, R. Quirynen, S. Gros, M. Diehl, SIOPT, 2017.
 14. **Lifted Collocation Integrators for Direct Optimal Control in ACADO Toolkit**, R. Quirynen, S. Gros, B. Houska, M. Diehl, Mathematical Programming & Computation, 2017.
 15. **A parallelizable interior point method for two-stage robust MPC**, E. Klintberg, S. Gros, Transaction on Control System Technology, 2017
 16. **Real-Time Economic Nonlinear Model Predictive Control for Wind Turbine Control**, S. Gros, A. Schild, International Journal of Control 2017
 17. **Penalty Functions for Handling Large Deviation of Quadrature States in NMPC**, S. Gros, M. Zanon, Transaction on Automatic Control, 2017
 18. **An analysis of the Directional-Modifier Adaptation algorithm based on Optimal Experimental Design**, Processes, S. Gros, 2016
 19. **A Tracking NMPC Formulation that is Locally Equivalent to Economic NMPC**, M. Zanon, S. Gros, M. Diehl, Journal of Process Control, 2016
 20. **Numerical structure of the Hessian of the Lagrange dual function for a class of convex problems**, E. Klintberg, S. Gros, SIAM Journal on Control and Optimization (SICON), 2016
 21. **From Linear MPC to Nonlinear MPC: bridging the gap via the Real-Time Iteration**, S. Gros, M. Zanon, R. Quirynen, A. Bemporad, M. Diehl, International Journal of Control 2016
 22. **An Inexact Interior Point Method for the Optimization of Differential Algebraic Systems**, E. Klintberg, S. Gros, Journal of Computer & Chemical Engineering, 2016.
 23. **Real-time Nonlinear MPC and MHE for a Large-scale Mechatronic Application**, Control Engineering

Practice, M. Vukov, S. Gros, G. Horn, G. Frison, K. Geebelen, J. B. Jørgensen, J. Swevers, M. Diehl, Control Engineering Practice, 2015.

24. **Indefinite Linear MPC and Approximated Economic MPC for Nonlinear Systems**, M. Zanon, S. Gros and M. Diehl. Journal of Process Control, 2014.
25. **Optimization-based load reduction during rapid shutdown of multi-megawatt wind turbine generators**, S. Gros and B. Chachuat, Wind Energy, Vol. 17, Issue 7, pp 1055-1075, 2013
26. **Airborne Wind Energy Based on Dual Airfoils**, Wind Energy - Special Issue 2013, M. Zanon, S. Gros, J. Andersson and M. Diehl.
27. **Neighboring Extremal Control for Singular Dynamics Optimization Problems I: Single Input Case**, S. Gros, B. Srinivasan, and D. Bonvin, International Journal of Control, 82:1099-1112, 2009.
28. **Neighboring Extremal Control for Singular Dynamics Optimization Problems II: Multiple-input Case**, S. Gros, B. Chachuat, and D. Bonvin, International Journal of Control, 82:1193-1211, 2009.
29. **Optimizing Control based on Output Feedback**, S. Gros, B. Srinivasan, and D. Bonvin. Computer & Chemical Engineering, 2009, page 191-198.
30. **Robust Predictive Control Based on Neighboring Extremals**, Journal of Process Control, vol. 16, num. 3, p. 243-253, 2006, S. Gros, B. Srinivasan, and D. Bonvin.

Book Chapters (peer-reviewed)

1. **Online Non-convex Optimal Control**, S. Gros, in Handbook of Model Predictive Control, Birkhauser, 2018
2. **Modeling of Airborne Wind Energy Systems in Natural Coordinates**, S. Gros and M. Diehl, Green Energy and Technology, Edition Springer-Verlag 2013
3. **Numerical Trajectory Optimization for Airborne Wind Energy Systems Described by High-Fidelity Aircraft Models**, G. Horn, S. Gros, and M. Diehl, Green Energy and Technology, 2013
4. **Model predictive control of rigid-airfoil Airborne Wind Energy systems**, S. Gros, and M. Diehl, Green Energy and Technology, M. Zanon, 2013
5. **An experimental test setup for advanced estimation and control of an airborne wind energy system**, Geebelen, K., Vukov, M., Wagner, A., Ahmad, H., Zanon, M., Gros, S., Vandepitte, D., Swevers, J., Diehl, M., Green Energy and Technology, 2013
6. **A Two-time-scale Control Scheme for Fast Unconstrained Systems**, S. Gros, D. Bucciari, P. Mullhaupt and D. Bonvin, Springer Lecture Notes in Control and Information Sciences Series, 2006

International conferences (peer-reviewed)

1. **Practical Reinforcement Learning of Stabilizing Economic MPC**, M. Zanon, S. Gros, A. Bemporad, European Control Conference 2019
2. **Multi-market Scheduling of Battery Storage Within Renewable Portfolio**, J. Vasilj, S. Gros, D. Jakus, Saraijcev, P., IEEE PES Innovative Smart Grid Technologies Conference Europe, 2018
3. **Optimal Coordination of Automated Vehicles at Intersections with Turns**, R. Hult, M. Zanon, S. Gros, P. Falcone, European Control Conference 2019
4. **A Distributed Robust Optimal Control Framework Based on Polynomial Chaos**, P. Piprek, S. Gros, F. Holzappel, 5th CEAS Conference on Guidance, Navigation and Control 2019
5. **An MIQP-based heuristic for Optimal Coordination of Vehicles at Intersections**, R. Hult, M. Zanon, S. Gros, P. Falcone, Conference on Decision and Control 2018
6. **ANN-based Fatigue Estimation and Reduction for Wind Turbine Control based on economic-tracking NMPC**, J. Luna, S. Gros, O. Falkenberg, A. Schild, IECON 2018
7. **A Sparse ANN-based Fatigue Estimation for Wind Turbine Control based on NMPC**, J. Luna, S.

- Gros, O. Falkenberg, A. Schild, European Control Conference, 2018
8. **Fast and smooth surface B-spline interpolation for regularly spaced data used in system modeling to make MPC real-time feasible**, R. Mitze, D. Dillkoetter, S. Gros, A. Schild, M. Mönnigmann, European Control Conference, 2018
 9. **Operational Regions of a Multi-Kite AWE System**, R. Leuthold, J. De Schutter, E. Malz, G. Licitra, S. Gros, M. Diehl, European Control Conference, 2018
 10. **Energy-Optimal Coordination of Autonomous Vehicles at Intersections**, R. Hult, M. Zanon, S. Gros, P. Falcone, European Control Conference, 2018
 11. **A Quantification of the Performance Loss of Power Averaging in Airborne Wind Energy Farms**, E. Malz, M. Zanon, S. Gros, European Control Conference, 2018
 12. **Experimental Validation of Distributed Optimal Vehicle Coordination**, M. Zanon, R. Hult, S. Gros, P. Falcone, European Control Conference, 2018
 13. **Super-short Term Wind Speed Prediction based on Artificial Neural Networks for Wind Turbine Control Applications**, J. Luna, S. Gros, J. Geisler, O. Falkenberg, A. Schild, IECON 2018.
 14. **Valuation of Contract Between Power Supplier and Electric Vehicle Owner**, European Energy Markets 2017, J. Vasilj, S. Gros, A. Grauers, I. Krasic
 15. **A Periodic Tracking MPC that is Locally Equivalent to Periodic Economic MPC**, IFAC 2017, M. Zanon, S. Gros, M. Diehl
 16. **Induction in Optimal Control of Multiple-kite Airborne Wind Energy Systems**, IFAC 2017, R. Leuthold, S. Gros, M. Diehl
 17. **Implicit Integrators for Linear Dynamics Coupled to a Nonlinear Static Feedback and Application to Wind Turbine Control**, S. Gros, R. Quirynen, A. Schild, M. Diehl, IFAC 2017
 18. **Approximate inverses in fast dual proximal gradient methods for model predictive control**, E. Klintberg, S. Gros, IFAC 2017
 19. **An Asynchronous Algorithm for Optimal Vehicle Coordination at Traffic Intersections**, M. Zanon, S. Gros, P. Falcone and H. Wymeersch, IFAC 2017
 20. **An improved dual Newton strategy for scenario-tree MPC**, E. Klintberg, J. Dahl, J. Fredriksson and S. Gros, Conference on Decision and Control 2016
 21. **Primal Decomposition of the Optimal Vehicle Coordination at Traffic Intersections**, R. Hult, M. Zanon, S. Gros and P. Falcone, Conference on Decision and Control 2016
 22. **Tracking Control and State Estimation of a Mobile Robot based on NMPC and MHE**, A. Jayasiri, S. Gros, G. Mann, American Control Conference, 2016
 23. **Baumgarte Stabilisation over the SO(3) Rotation Group for Control**, S. Gros, M. Zanon, M. Diehl, Conference on Decision and Control 2015
 24. **Inexact Newton based Lifted Implicit Integrators for fast Nonlinear MPC**, R. Quirynen, S. Gros, M. Diehl, NMPC Workshop 2015
 25. **Lifted implicit integrators for direct optimal control**, R. Quirynen, S. Gros, M. Diehl, Conference on Decision and Control 2015
 26. **An Improved Distributed Dual Newton-CG Method for Convex Quadratic Programming Problems**, A. Kozma, E. Klintberg, S. Gros, M. Diehl, Proceedings of the American Control Conference, 2014
 27. **Local Properties of Economic NMPC, Dissipativity and Dynamic Programming**, M. Zanon, S. Gros and M. Diehl. Conference on Decision and Control, 2014
 28. **A Newton Algorithm for Distributed Semi-Definite Programs Using the Primal-Dual Interior-point Method**, S. Gros, Conference on Decision and Control, 2014

29. **A Distributed Algorithm for NMPC-based Wind Farm Control**, S. Gros, Conference on Decision and Control, 2014
30. **An Improved Real-time NMPC Scheme for Wind Turbine Control using Spline-Interpolated Aerodynamic Coefficients**, S. Gros, R. Quirynen, M. Diehl. Conference on Decision and Control, 2014
31. **A Primal-dual Newton Method for Distributed Quadratic Programming**, E. Klintberg, S. Gros. Conference on Decision and Control, 2014
32. **Control of Dual-Airfoil Airborne Wind Energy Systems Based on Nonlinear MPC and MHE**, M. Zanon, G. Horn, S. Gros and M. Diehl. European Control Conference, 2014
33. **Airborne Wind Energy: Airfoil-Airmass Interaction**. M. Zanon, S. Gros, J. Meyers and M. Diehl. Proceedings of the 19th World Congress of the International Federation of Automatic Control, 2014
34. **Fast auto-generated ACADO integrators and application to MHE with multi-rate measurements**, European Control Conference, 2013, R. Quirynen, S. Gros, and M. Diehl
35. **A Real-time MHE and NMPC Scheme for Wind Turbine Control**, Conference on Decision and Control 2013, S. Gros, M. Vukov, M. Diehl
36. **An Economic NMPC Formulation for Wind Turbine Control**, Conference on Decision and Control 2013, S. Gros
37. **Efficient NMPC for Nonlinear Models with Linear Subsystems**, Conference on Decision and Control 2013, R. Quirynen, S. Gros, M. Diehl
38. **Rotational Start-up of Tethered Airplanes Based on NMPC and MHE**, in proceeding of European Control Conference, 2013, M. Zanon, S. Gros, and M. Diehl
39. **Control of Airborne Wind Energy Systems Based on NMPC and MHE**, in proceeding of European Control Conference 2013, S. Gros, M. Zanon and M. Diehl
40. **A Relaxation Strategy for the Optimization of Airborne Wind Energy Systems**, in proceeding of European Control Conference 2013, S. Gros, M. Zanon and M. Diehl
41. **NMPC based on Huber Penalty Functions to Handle Large Deviations of Quadrature States**, S. Gros and M. Diehl, American Control Conference 2013
42. **A Lyapunov Function for Periodic Economic Optimizing Model Predictive Control**, M. Zanon, S. Gros and M. Diehl. Proceedings of the 52nd Conference on Decision and Control, 2013
43. **Moving Horizon Estimation with a huber penalty function for robust pose estimation of tethered airplanes**, Geebelen, K., Wagner, A., Gros, S., Swevers, J., Diehl, M., American Control Conference 2013
44. **Robust and Stable Periodic Flight of Power Generating Kite Systems in Turbulent Wind Flow Field**, IFAC 2012, J. Sternberg, J. Goit, S. Gros, M. Diehl
45. **Lyapunov based design of robust linear-feedback for time-optimal periodic quadcopter motions**, J. Gillis, K. Geebelen, J. Sternberg-Kaletta, S. Gros, B. Houska and M. Diehl, Proc. Benelux Meeting on Systems and Control, 2012
46. **An Inner Convex Approximation Algorithm for BMI Optimization and Application in Control**, in proceeding of Conference on Decision and Control 2012, Q.T. Dinh, W. Michiels, S. Gros, M. Diehl
47. **Aircraft Control based on Fast Non-linear MPC & Multiple-shooting**, in proceeding of Conference on Decision and Control 2012, S. Gros and M. Diehl
48. **Attitude Estimation Based on Inertial and Position Measurements**, in proceeding of Conference on Decision and Control 2012, S. Gros and M. Diehl
49. **Nonlinear MPC and MHE for Mechanical Multi-Body Systems with Application to Fast Tethered Airplanes**, in proceeding of IFAC Nonlinear Model Predictive Control 2012, S. Gros, M. Zanon, M. Diehl

50. **Approximate Robust Optimal Control of Periodic Systems with Invariants and High-Index Differential Algebraic Systems**, in proceeding of ROCOND 2012, J. Sternberg, S. Gros, B. Houska, M. Diehl.
51. **In-flight Estimation of the Aerodynamic Roll Damping and Trim Angle for a Tethered Aircraft based on Multiple-shooting**, in proceeding of SYSID 2012, S. Gros, H. Ahmad, K. Geebelen, J. Swevers and M. Diehl
52. **An experimental test set-up for launch/recovery of an Airborne Wind Energy system**, in proceeding of American Control Conference 2012, K. Geebelen, H. Ahmad, M. Vukov, S. Gros, J. Swevers and M. Diehl
53. **Orbit Control for a Power Generating Airfoil Based on Nonlinear MPC**, in proceeding of American Control Conference 2012, S. Gros, M. Zanon, M. Diehl
54. **Methodology for Emergency Shut-down of Multi-megawatt Wind Turbine Generators**, in proceeding of PSE 2012, S. Gros, B. Chachuat
55. **NCO tracking for singular control problems using neighboring extremals**, Gros, S., Chachuat, B., Bonvin, D., IFAC 2008
56. **Neighboring Extremal Controllers for Singular Problems**, in proceeding of American Control Conference 2004, S. Gros, B. Srinivasan and D. Bonvin
57. **Robust Predictive Control Using Neighboring Extremals**, in proceeding of Dycops 2004, S. Gros, B. Srinivasan and D. Bonvin
58. **Static Optimization via Tracking of the Necessary Conditions of Optimality using Neighboring Extremals**, in proceeding of American Control Conference 2005, S. Gros, B. Srinivasan and D. Bonvin