

# Ivan Markovsky's Curriculum Vitae

Catalan Institution for Research and Advanced Studies (ICREA)  
International Centre for Numerical Methods in Engineering (CIMNE)  
post address: Gran Capitàn, 08034 Barcelona, Spain  
webpage: <https://imarkovs.github.io>  
email: [imarkovsky@cimne.upc.edu](mailto:imarkovsky@cimne.upc.edu)

## Biographical sketch

---

I am an [ICREA professor](#) at the [Int. Centre for Numerical Methods in Engineering](#). My Ph.D. is in electrical engineering from the [Katholieke Universiteit Leuven](#). From 2006 to 2012 I was a lecturer at the [School of Electronics and Computer Science](#) of the University of Southampton and from 2012 to 2022 an associate professor at the Vrije Universiteit Brussel. My expertise is in structured low-rank approximation, system identification, and data-driven control, topics on which I've published 150 peer-reviewed papers, 11 book chapters, and 2 monographs. In 2011, I was awarded an [ERC starting grant](#) on the topic of data-driven control using low-rank approximation.



## Education

---

- 02/2005 PhD in electrical engineering, Katholieke Universiteit Leuven, Belgium  
Thesis title: *Exact and approximate modeling in the behavioral setting*  
Supervisors: [Sabine Van Huffel](#), [Bart De Moor](#), and [Jan C. Willems](#)
- BS (06/1997) and MS (06/1998) in control engineering, [Technical University of Sofia](#), Bulgaria

## Positions

---

- 01/2023–present research professor, [Int. Centre for Numerical Methods in Engineering](#)
- 10/2022–12/2022 visiting professor, [Institut für Automatik \(IfA\), ETH-Zurich](#)
- 10/2012–09/2022 research professor, Vrije Universiteit Brussel, Belgium
- 01/2007–09/2012 lecturer, University of Southampton, UK
- 03/2005–12/2006 postdoctoral researcher, Katholieke Universiteit Leuven, Belgium
- 11/2000–02/2005 PhD researcher, Katholieke Universiteit Leuven, Belgium
- 08/1998–12/1999 research assistant, University of Notre Dame, USA

## Research interests

---

My main research interests are computational methods for system theory, identification, and control:

- [structured low-rank approximation and completion](#)
- system identification in the behavioral setting
- data-driven signal processing and control

## Research record

---

- 2 monographs published by Springer (sole author) and SIAM (main author)
- 11 book chapters (sole author for 3, main author for 6) published by Kluwer, Springer, CRC, IET
- 86 journal papers (sole author for 14, main author for 32)
- 55 refereed conference papers (sole author for 8, main author for 30)

## Recent teaching activities

---

My vision for education is to base teaching on *student-centered activities*, involving discussions, problem solving, and project work. An example of a course build on these principles is described in

I. Markovsky. [Project-based teaching: A case study of learning systems theory and signal processing by a dynamic measurements project](#). IEEE Control Systems Magazine, 2026.

Recent master and PhD courses:

- 06/2025 [“Identification and data-driven control”](#), PhD course for the [MSCA FRONTIERS network](#)
- 09/2024 [“Data-driven systems theory, signal processing, and control”](#), PhD course for the [UKACM-SEMNI Autumn School on Data-Centric Engineering in Computational Mechanics](#)
- 11/2022 [“Behavioral approach to systems theory”](#), PhD course for the [Graduate School in Systems, Optimization, Control and Networks](#), Leuven, Belgium
- 2021–22 [“System identification”](#), 2nd year master course, taught at the VUB
- 2018–22 [“Nonlinear system identification”](#), 2nd year master course, also taught at the VUB

## Supervision of PhD students

---

- 2022– [L. Hemelhof](#), [J. Wang](#), and [A. Sasfi](#), “Data-driven control” (co-supervisor)
- 2020–2024, M. Baraharska, “Methods for improvement of the dynamic measurements in control systems” (co-supervisor)
- 2017–2020, [A. Fazzi](#), “Matrix nearness problems with applications” (co-supervisor)
- 2016–2020, G. Quintana Carapia, “Data-driven dynamic measurement”
- 2013–2016, [S. Rhode](#), “Robust and regularized system identification” (co-supervisor)
- 2008–2012, M. Przedwojski, “Analysis of synchronization errors” (co-supervisor)
- 2007–2011, F. Le, “Identification of electrically stimulated muscle after stroke”

## Postdocs

---

- 2022– [J. Eising](#), “Data-driven control”
- 2019–2022, [A. Fazzi](#), “Matrix nearness problems”
- 2019–2021, [V. Mishra](#), “Behavioral systems theory”
- 2019–2020, B. Grossmann, “Data-driven signal processing”
- 2018–2020, [P. Dreesen](#), “Convex relaxations for data-driven control”

- 2013–2015, 2018–2019, [M. Ishteva](#), “Tensor approximations”
- 2011–2014, [K. Usevich](#), “Structured low-rank approximation”

## Organization of scientific meetings

---

- 06/2025 organizer mini-symposium “Recent Progress in Direct Data-Driven Methods”, [ADMOS conference](#), Barcelona
- 08/2020 co-organizer data-driven control session, [24th Symposium MTNS](#), Cambridge
- 12/2019 organizer low-rank approximation session, [58th IEEE Conf. Decision and Control](#), Nice
- 03/2019 organizing committee, [38th Benelux Meeting on Systems and Control](#), Lommel
- 08/2017 co-organizer tensor decompositions session, [SIAM Appl. Algebraic Geometry](#), Atlanta
- 03/2017 organizing committee, [36th Benelux Meeting on Systems and Control](#), Spa
- 03/2015 organizing committee, [34th Benelux Meeting on Systems and Control](#), Lommel
- 07/2014 co-organizer of low-rank approximation sessions, [21st Symposium MTNS](#), Groningen
- 09/2013 organizer of [low-rank approximation](#) session, [Dolomites Research Week](#), Canazei
- 08/2006 co-organizer, [4th Int. Workshop on Total Least Squares and EIV Modeling](#), Leuven

## Academic service and advisory role

---

- 01/2007–12/2024 associate editor of the [International Journal of Control](#)
- 01/2019–09/2022 [BE-MATHS-IN](#) representative for the VUB
- 01/2015–12/2017 associate editor of the [SIAM Journal on Matrix Analysis and Applications](#)
- 07/2013 editorial board member of the [ROKS Workshop](#)
- 07/2012 scientific committee of the [IFAC Symp. on System Identification](#)

## Funding ID

---

acronym	my role	agency	number	period	amount, EUR
MOTADA	PI	MCIU/AEI	PID2023-148952OB-I00	10/2024-09/2027	48K
MB2DD	consultant	FWO-SNSF	G033822N	01/2022-12/2025	540K
<a href="#">SeLMA</a>	PI	FWO	30468160	01/2018-12/2021	550K
<a href="#">VOLTERRA</a>	PI	FWO	G090117N	01/2017-12/2020	192K
<a href="#">DECOUPL</a>	PI	FWO	G028015N	01/2015-12/2018	252K
<a href="#">SLRA</a>	PI	ERC	ERC-StG 258581	01/2011-12/2015	782K

## Recent invited lectures

---

- 08/2025 “Low-Rank Approximation: Theory, Algorithms, and Applications”, [Numerical Analysis Group](#), Mathematisches Institut, Universität Tübingen, Germany
- 07/2025 “Computations for systems and control without model parameters”, [PVD75 - Proper Value Decomposition 75](#), Selva di Fasano (Br), Italy

- 05/2025 “Hidden structures in data-driven representations of dynamical systems”, [Hidden structures in dynamical systems, optimization, and machine learning](#), L'Aquila, Italy
- 12/2024 “Behavioral approach to system identification and data-driven control”, [Workshop on data-driven control: theory and applications](#), CDC, Milan, Italy
- 09/2023 “Optimization problems in data-driven control”, Optimization days, Southampton, UK
- 07/2023 “Direct data-driven analysis, signal processing, and control”, Kolloquium Technische Kybernetik, University of Stuttgart, Germany
- 03/2023 “Behavioral approach to system identification and data-driven signal processing”, Seminar Series on Optimization, Learning and Control, EPFL, Switzerland

## Prizes, awards, and indicators of external recognition

---

- 12/2024 [2024 IEEE Control Systems Magazine outstanding paper award](#)
- 03/2012 10-year research mandate by the VUB research council
- 08/2010 ERC starting grant (ERC-StG 258581)
- 06/2008 [Alston Householder Prize](#), honorable mention awarded at the *XVII Householder Symp.*
- 02/2005 PhD summa cum laude with congratulations of the Board of Examiners
- 08/2004 Wolfram research award at the *COMPSTAT conference*, Prague, Czech Republic

## Recent collaborations

---

- [M. Mitchell](#) (ICFO) on signal processing for optically pumped magnetometer
- [J. Eising](#) (University of Groningen) on data-driven control in the behavioral setting
- [A. Padoan](#) (University of British Columbia) on behavioral systems theory
- [S. Golestan](#) (Aalborg University) on data-driven control of power electronics systems
- [R. Toth](#) (TU-Eindhoven) on linear parameter-varying systems
- [M. Müller](#) (Leibniz University Hannover) on data-driven control
- [F. Dörfler](#) (ETH-Zurich) on data-driven control
- [P. Patrinos](#) (K.U. Leuven, Belgium) on optimization methods for control
- [K. Usevich](#) (CNRS, Nancy) on low-rank approximation methods

## Selected publications

---

My PhD work on the *total least-squares*

**I. Markovsky** and S. Van Huffel. “Overview of total least squares methods”. In: *Signal Processing* 87 (2007), pp. 2283–2302. doi: [10.1016/j.sigpro.2007.04.004](https://doi.org/10.1016/j.sigpro.2007.04.004)

and *system identification in the behavioral setting*

**I. Markovsky** et al. *Exact and Approximate Modeling of Linear Systems: A Behavioral Approach*. SIAM, 2006. doi: [10.1137/1.9780898718263](https://doi.org/10.1137/1.9780898718263)

lead me to the concept of the *structured low-rank approximation*

**I. Markovsky.** *Low-Rank Approximation: Algorithms, Implementation, Applications*. Springer, 2012. doi: [10.1007/978-1-4471-2227-2](https://doi.org/10.1007/978-1-4471-2227-2)

Specific contributions of this work are recognizing the role of the matrix structure and developing fast methods for applications in system theory, signal processing, and computer algebra. The current state-of-the-art methods are implemented in the [SLRA software package](#).

In 2008, I became interested in *data-driven control*. Based on prior work in subspace identification,

J. C. Willems et al. "A note on persistency of excitation". In: *Systems & Control Lett.* 54.4 (2005), pp. 325–329. doi: [10.1016/j.sysconle.2004.09.003](https://doi.org/10.1016/j.sysconle.2004.09.003)

I developed with P. Rapisarda a data-driven linear quadratic tracking method

**I. Markovsky** and P. Rapisarda. "Data-driven simulation and control". In: *Int. J. Contr.* 81.12 (2008), pp. 1946–1959. doi: [10.1080/00207170801942170](https://doi.org/10.1080/00207170801942170)

A fundamentally new idea of our approach is the construction of system's responses directly from data without knowing the system. In recent work, K. Usevich and I

**I. Markovsky** and K. Usevich. "Structured low-rank approximation with missing data". In: *SIAM J. Matrix Anal. Appl.* 34.2 (2013), pp. 814–830. doi: [10.1137/120883050](https://doi.org/10.1137/120883050)

laid the foundation for *missing data estimation*. We make no assumptions about the nature or distribution of the missing values and can treat simultaneously missing, exact, and noisy data. The classical motivation for missing data estimation is dealing with sensor failures. A key novel idea of

**I. Markovsky.** "A missing data approach to data-driven filtering and control". In: *IEEE Trans. Automat. Contr.* 62 (4 2017), pp. 1972–1978. issn: 1558-2523. doi: [10.1109/TAC.2016.2591178](https://doi.org/10.1109/TAC.2016.2591178)

is to use missing data for signal processing and control. This idea, *connects my major research topics*—low-rank approximation and data-driven control.

Since 2020 I am a regular visitor at the IfA institute of the ETH-Zurich for collaboration with F. Dörfler and his team. This collaboration led to important [new results](#) as well as [tutorial/overview papers](#).

## Research output overview

---

Number of publications per category:

A	scientific monographs	2
B	articles in books	11
C	articles in journals	85
D	articles in conference proceedings	54

Number of citations as of 20 November 2025:

[8459](#) Google Scholar h-index 36

Pdf files and computer code, implementing the methods and allowing [reproducibility](#) of the results, are available from: <https://imarkovs.github.io/>

## A. Scientific monographs

---

A.1. **I. Markovsky.** *Low-Rank Approximation: Algorithms, Implementation, Applications*. Springer, 2019. doi: [10.1007/978-3-319-89620-5](https://doi.org/10.1007/978-3-319-89620-5).

A.2. **I. Markovsky.** *Low-Rank Approximation: Algorithms, Implementation, Applications*. Springer, 2012. doi: [10.1007/978-1-4471-2227-2](https://doi.org/10.1007/978-1-4471-2227-2).

A.3. **I. Markovsky**, J. C. Willems, S. Van Huffel, and B. De Moor. *Exact and Approximate Modeling of Linear Systems: A Behavioral Approach*. SIAM, 2006. doi: [10.1137/1.9780898718263](https://doi.org/10.1137/1.9780898718263).

## B. Articles in monographs (internationally peer reviewed)

---

B.1. **I. Markovsky**. “Dynamic measurement”. In: *Data-driven filtering and control design: Methods and applications*. IET, 2019. Chap. 6, pp. 97–108. doi: [10.1049/PBCE123E\\_ch6](https://doi.org/10.1049/PBCE123E_ch6).

B.2. **I. Markovsky** and P.-L. Dragotti. “Using structured low-rank approximation for sparse signal recovery”. In: *Latent Variable Analysis and Signal Separation*. Lecture Notes in Computer Science. Springer, 2018, pp. 479–487. doi: [10.1007/978-3-319-93764-9\\_44](https://doi.org/10.1007/978-3-319-93764-9_44).

B.3. **I. Markovsky**, A. Fazzi, and N. Guglielmi. “Applications of polynomial common factor computation in signal processing”. In: *Latent Variable Analysis and Signal Separation*. Lecture Notes in Computer Science. Springer, 2018, pp. 99–106. doi: [10.1007/978-3-319-93764-9\\_10](https://doi.org/10.1007/978-3-319-93764-9_10).

B.4. **I. Markovsky**. “System identification in the behavioral setting: A structured low-rank approximation approach”. In: *Latent Variable Analysis and Signal Separation*. Ed. by E. Vincent et al. Vol. 9237. Lecture Notes in Computer Science. Springer, 2015, pp. 235–242. isbn: 978-3-319-22481-7. doi: [10.1007/978-3-319-22482-4\\_27](https://doi.org/10.1007/978-3-319-22482-4_27).

B.5. **I. Markovsky**. “Rank constrained optimization problems in computer vision”. In: *Regularization, Optimization, Kernels, and Support Vector Machines*. Ed. by A. Argyriou J. Suykens M. Signoretto. Pattern Recognition. Chapman & Hall/CRC Machine Learning, 2014. Chap. 13, pp. 293–312. isbn: 9781482241396. doi: [10.1201/b17558-16](https://doi.org/10.1201/b17558-16).

B.6. **I. Markovsky** and K. Usevich. “Nonlinearly structured low-rank approximation”. In: *Low-Rank and Sparse Modeling for Visual Analysis*. Ed. by Yun Raymond Fu. Springer, 2014, pp. 1–22. doi: [10.1007/978-3-319-12000-3\\_1](https://doi.org/10.1007/978-3-319-12000-3_1).

B.7. **I. Markovsky**. “Algorithms and iterate programs for weighted low-rank approximation with missing data”. In: ed. by A. Iske et al. Vol. 3. Springer, 2011. Chap. 12, pp. 255–273. doi: [10.1007/978-3-642-16876-5\\_12](https://doi.org/10.1007/978-3-642-16876-5_12).

B.8. **I. Markovsky**, A. Amann, and S. Van Huffel. “Application of filtering methods for removal of resuscitation artifacts from human ECG signals”. In: *System Identification, Environmental Modelling, and Control System Design*. Ed. by L. Wang, H. Garnier, and T. Jakeman. Springer, 2009. doi: [10.1007/978-0-85729-974-1\\_14](https://doi.org/10.1007/978-0-85729-974-1_14).

B.9. **I. Markovsky** and S. Van Huffel. “On weighted structured total least squares”. In: *Large-Scale Scientific Computing*. Ed. by I. Lirkov, S. Margenov, and J. Waśniewski. Vol. 3743. Lecture Notes in Computer Science. Springer-Verlag, 2006, pp. 695–702. doi: [10.1007/11666806\\_80](https://doi.org/10.1007/11666806_80).

B.10. A. Kukush, **I. Markovsky**, and S. Van Huffel. “Consistent estimation of an ellipsoid with known center”. In: *Comp. Stat. (COMPSTAT)*. Ed. by J. Antoch. Physica-Verlag, 2004, pp. 1369–1376. isbn: 3-7908-1554-3. doi: [10.1007/s00211-004-0526-9](https://doi.org/10.1007/s00211-004-0526-9).

B.11. A. Kukush, **I. Markovsky**, and S. Van Huffel. “On consistent estimators in linear and bilinear multivariate errors-in-variables models”. In: *Total Least Squares and Errors-in-Variables Modeling: Analysis, Algorithms and Applications*. Ed. by S. Van Huffel and P. Lemmerling. Kluwer, 2002, pp. 155–164. doi: [10.1007/978-94-017-3552-0\\_14](https://doi.org/10.1007/978-94-017-3552-0_14).

## C. Articles in journals (internationally peer reviewed)

---

C.1. **I. Markovsky**. “Project-based teaching: A case study of learning systems theory and signal processing by a dynamic measurements project”. In: *IEEE Control Systems Magazine* (2026).



- C.2. **I. Markovsky**, A. Muixí, S. Zlotnik, and P. Diez. “A Behavioral Approach to Direct Data-Driven Fault Detection”. In: *Mechanical Systems and Signal Processing* 245 (2026), p. 113802. doi: [10.1016/j.ymssp.2025.113802](https://doi.org/10.1016/j.ymssp.2025.113802).
- C.3. **I. Markovsky**, C. Verhoek, and R. Toth. “The most powerful unfalsified linear parameter-varying model”. In: *Automatica* (2026).
- C.4. A. Sasfi, A. Padoan, **I. Markovsky**, and F. Dörfler. “GREAT: Grassmannian REcursive Algorithm for Tracking & Online System Identification”. In: *IEEE Trans. Automat. Contr.* 71 (5 2026). doi: [10.1109/TAC.2025.3636986](https://doi.org/10.1109/TAC.2025.3636986).
- C.5. C. Verhoek, **I. Markovsky**, and R. Toth. “Direct data-driven interpolation and approximation of linear parameter-varying system trajectories”. In: *IFAC Journal of Systems and Control* (2026). doi: [10.1016/j.ifacsc.2025.100352](https://doi.org/10.1016/j.ifacsc.2025.100352).
- C.6. J. Wang, L. Hemelhof, **I. Markovsky**, and P. Patrinos. “Fast data-driven iterative learning control for linear system with output disturbance”. In: *Journal of the Franklin Institute* (2026).
- C.7. M. Alsalti, **I. Markovsky**, V. G. Lopez, and M. A. Müller. “Data-based system representations from irregularly measured data”. In: *IEEE Trans. Automat. Contr.* 70 (2025), pp. 143–158. doi: [10.1109/TAC.2024.3423053](https://doi.org/10.1109/TAC.2024.3423053).
- C.8. A. Fazzi, **I. Markovsky**, and K. Usevich. “Implementation improvements and extensions of an ODE-based algorithm for structured low-rank approximation”. In: *Calcolo* 62 (2025). doi: [10.1007/s10092-024-00623-y](https://doi.org/10.1007/s10092-024-00623-y).
- C.9. F. Kaviani, **I. Markovsky**, and H. Ossareh. “Uncertainty Quantification of Data-Driven Output Predictors in the Output Error Setting”. In: *IEEE Trans. Automat. Contr.* 70 (2025), pp. 7588–7595. doi: [10.1109/TAC.2025.3573151](https://doi.org/10.1109/TAC.2025.3573151).
- C.10. **I. Markovsky**, J. Eising, and A. Padoan. “How to represent and identify affine time-invariant systems?” In: *Control Systems Letters* 9 (2025), pp. 1207–1212. doi: [10.1109/LCSYS.2025.3579393](https://doi.org/10.1109/LCSYS.2025.3579393).
- C.11. K. Usevich, J. Gillard, P. Dreesen, and **I. Markovsky**. “Structured nuclear norm matrix completion: Guaranteeing exact recovery via block-column scaling”. In: *Numerical Linear Algebra with Applications* 32.4 (2025), e70031. doi: [10.1002/nla.70031](https://doi.org/10.1002/nla.70031).
- C.12. C. Verhoek, **I. Markovsky**, S. Haesaert, and R. Toth. “The behavioral approach for LPV data-driven representations”. In: *IEEE Trans. Automat. Contr.* (2025). doi: <https://doi.org/10.1109/TAC.2025.3613909>.
- C.13. J. Yan, **I. Markovsky**, and J. Lygeros. “Secure Data Reconstruction: A Direct Data-Driven Approach”. In: *IEEE Trans. Automat. Contr.* (2025). doi: [10.1109/TAC.2025.3585652](https://doi.org/10.1109/TAC.2025.3585652).
- C.14. A. Fazzi, A. Kukush, and **I. Markovsky**. “Bias correction for Vandermonde low-rank approximation”. In: *Econometrics and Statistics* 31 (2024), pp. 38–48. doi: [10.1016/j.ecosta.2021.09.001](https://doi.org/10.1016/j.ecosta.2021.09.001).
- C.15. **I. Markovsky**, M. Alsalti, V. G. Lopez, and M. A. Müller. “Identification from data with periodically missing output samples”. In: *Automatica* 169 (2024), p. 111869. doi: [10.1016/j.automatica.2024.111869](https://doi.org/10.1016/j.automatica.2024.111869).
- C.16. **I. Markovsky** and H. Ossareh. “Finite-data nonparametric frequency response evaluation without leakage”. In: *Automatica* 159 (2024), p. 111351. doi: [10.1016/j.automatica.2023.111351](https://doi.org/10.1016/j.automatica.2023.111351).
- C.17. J. Wang, L. Hemelhof, **I. Markovsky**, and P. Patrinos. “A trust-region method for data-driven iterative learning control of nonlinear systems”. In: *Control Systems Letters* 8 (2024), pp. 1847–1852. doi: [10.1109/LCSYS.2024.3417805](https://doi.org/10.1109/LCSYS.2024.3417805).

- C.18. F. Dörfler, J. Coulson, and **I. Markovsky**. “Bridging direct & indirect data-driven control formulations via regularizations and relaxations”. In: *IEEE Trans. Automat. Contr.* 68 (2 2023), pp. 883–897. doi: [10.1109/TAC.2022.3148374](https://doi.org/10.1109/TAC.2022.3148374).
- C.19. A. Fazzi and **I. Markovsky**. “Addition and intersection of linear time-invariant behaviors”. In: *IFAC Journal of Systems and Control* 26 (2023), p. 100233. doi: [10.1016/j.ifacsc.2023.100233](https://doi.org/10.1016/j.ifacsc.2023.100233).
- C.20. A. Fazzi and **I. Markovsky**. “Distance problems in the behavioral setting”. In: *European Journal of Control* 74 (2023), p. 100832. doi: [10.1016/j.ejcon.2023.100832](https://doi.org/10.1016/j.ejcon.2023.100832).
- C.21. **I. Markovsky**. “Data-driven simulation of generalized bilinear systems via linear time-invariant embedding”. In: *IEEE Trans. Automat. Contr.* 68 (2 2023), pp. 1101–1106. doi: [10.1109/TAC.2022.3146726](https://doi.org/10.1109/TAC.2022.3146726).
- C.22. **I. Markovsky** and F. Dörfler. “Identifiability in the behavioral setting”. In: *IEEE Trans. Automat. Contr.* 68 (3 2023), pp. 1667–1677. doi: [10.1109/TAC.2022.3209954](https://doi.org/10.1109/TAC.2022.3209954).
- C.23. **I. Markovsky**, L. Huang, and F. Dörfler. “Data-driven control based on behavioral approach: From theory to applications in power systems”. In: *IEEE Control Systems Magazine* 43 (5 2023), pp. 28–68. doi: [10.1109/MCS.2023.3291638](https://doi.org/10.1109/MCS.2023.3291638).
- C.24. **I. Markovsky**, E. Prieto-Araujo, and F. Dörfler. “On the persistency of excitation”. In: *Automatica* (2023), p. 110657. doi: [10.1016/j.automatica.2022.110657](https://doi.org/10.1016/j.automatica.2022.110657).
- C.25. A. Fazzi, B. Grossmann, G. Mercère, and **I. Markovsky**. “MIMO System Identification Using Common Denominator and Numerators with Known Degrees”. In: *International Journal of Adaptive Control and Signal Processing* 36.4 (2022), pp. 870–881. doi: [10.1002/acs.3380](https://doi.org/10.1002/acs.3380).
- C.26. **I. Markovsky** and F. Dörfler. “Data-driven dynamic interpolation and approximation”. In: *Automatica* 135 (2022), p. 110008. doi: [10.1016/j.automatica.2021.110008](https://doi.org/10.1016/j.automatica.2021.110008).
- C.27. A. Fazzi, N. Guglielmi, and **I. Markovsky**. “A gradient system approach for Hankel structured low-rank approximation”. In: *Linear Algebra Appl.* 623 (2021), pp. 236–257. doi: [10.1016/j.laa.2020.11.016](https://doi.org/10.1016/j.laa.2020.11.016).
- C.28. A. Fazzi, N. Guglielmi, and **I. Markovsky**. “Generalized algorithms for the approximate matrix polynomial GCD of reducing data uncertainties with application to MIMO system and control”. In: *J. Comp. Appl. Math.* 393 (2021), p. 113499. doi: [10.1016/j.cam.2021.113499](https://doi.org/10.1016/j.cam.2021.113499).
- C.29. **I. Markovsky** and F. Dörfler. “Behavioral systems theory in data-driven analysis, signal processing, and control”. In: *Annual Reviews in Control* 52 (2021), pp. 42–64. doi: [10.1016/j.arcontrol.2021.09.005](https://doi.org/10.1016/j.arcontrol.2021.09.005).
- C.30. V. Mishra and **I. Markovsky**. “The Set of Linear Time-Invariant Unfalsified Models with Bounded Complexity is Affine”. In: *IEEE Trans. Automat. Contr.* 66 (9 2021), pp. 4432–4435. doi: [10.1109/TAC.2020.3046235](https://doi.org/10.1109/TAC.2020.3046235).
- C.31. G. Q. Carapia and **I. Markovsky**. “Input parameters estimation from time-varying measurements”. In: *Measurement* 153 (2020), p. 107418. doi: [10.1016/j.measurement.2019.107418](https://doi.org/10.1016/j.measurement.2019.107418).
- C.32. G. Q. Carapia, **I. Markovsky**, R. Pintelon, P. Csurcsia, and D. Verbeke. “Bias and covariance of the least squares estimate in a structured errors-in-variables problem”. In: *Comput. Statist. Data Anal.* 144 (2020), p. 106893. doi: [10.1016/j.csda.2019.106893](https://doi.org/10.1016/j.csda.2019.106893).
- C.33. G. Q. Carapia, **I. Markovsky**, R. Pintelon, P. Csurcsia, and D. Verbeke. “Experimental validation of a data-driven step input estimation method for dynamic measurements”. In: *IEEE Transactions on Instrumentation and Measurement* 69 (7 2020), pp. 4843–4851. doi: [10.1109/TIM.2019.2951865](https://doi.org/10.1109/TIM.2019.2951865).



- C.34. T. Liu, **I. Markovsky**, T.-K. Pong, and A. Takeda. "A hybrid penalty method for a class of optimization problems with multiple rank constraints". In: *SIAM J. Matrix Anal. Appl.* 41 (3 2020), pp. 1260–1283. doi: [10.1137/19M1269919](https://doi.org/10.1137/19M1269919).
- C.35. **I. Markovsky**, T. Liu, and A. Takeda. "Data-driven structured noise filtering via common dynamics estimation". In: *IEEE Trans. Signal Process.* 68 (1 2020), pp. 3064–3073. doi: [10.1109/TSP.2020.2993676](https://doi.org/10.1109/TSP.2020.2993676).
- C.36. V. Mishra, **I. Markovsky**, and B. Grossmann. "Data-Driven Tests for Controllability". In: *Control Systems Letters* 5 (2 2020), pp. 517–522. doi: [10.1109/LCSYS.2020.3003770](https://doi.org/10.1109/LCSYS.2020.3003770).
- C.37. **I. Markovsky**. "On the behavior of autonomous Wiener systems". In: *Automatica* 110 (2019), p. 108601. doi: [10.1016/j.automatica.2019.108601](https://doi.org/10.1016/j.automatica.2019.108601).
- C.38. M. Zhang, **I. Markovsky**, C. Schretter, and J. D'hooge. "Compressed Ultrasound Signal Reconstruction using a Low-rank and Joint-sparse Representation Model". In: *Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 66 (7 2019), pp. 1232–1245. doi: [10.1109/TUFFC.2019.2915096](https://doi.org/10.1109/TUFFC.2019.2915096).
- C.39. A. Fazzi, N. Guglielmi, and **I. Markovsky**. "An ODE based method for computing the Approximate Greatest Common Divisor of polynomials". In: *Numerical algorithms* 81 (2 2018), pp. 719–740. doi: [10.1007/s11075-018-0569-0](https://doi.org/10.1007/s11075-018-0569-0).
- C.40. N. Guglielmi and **I. Markovsky**. "An ODE based method for computing the distance of co-prime polynomials to common divisibility". In: *SIAM Journal on Numerical Analysis* 55 (3 2017), pp. 1456–1482. doi: [10.1137/15M1018265](https://doi.org/10.1137/15M1018265).
- C.41. **I. Markovsky**. "A missing data approach to data-driven filtering and control". In: *IEEE Trans. Automat. Contr.* 62 (4 2017), pp. 1972–1978. issn: 1558-2523. doi: [10.1109/TAC.2016.2591178](https://doi.org/10.1109/TAC.2016.2591178).
- C.42. **I. Markovsky** and G. Mercère. "Subspace identification with constraints on the impulse response". In: *Int. J. Contr.* 90 (8 2017), pp. 1728–1735. doi: [10.1080/00207179.2016.1219922](https://doi.org/10.1080/00207179.2016.1219922).
- C.43. K. Usevich and **I. Markovsky**. "Variable projection methods for approximate (greatest) common divisor computations". In: *Theoretical Computer Science* 681 (2017), pp. 176–198. doi: [10.1016/j.tcs.2017.03.028](https://doi.org/10.1016/j.tcs.2017.03.028).
- C.44. **I. Markovsky**. "On the most powerful unfalsified model for data with missing values". In: *Systems & Control Lett.* 95 (2016), pp. 53–61. doi: [10.1016/j.sysconle.2015.12.012](https://doi.org/10.1016/j.sysconle.2015.12.012).
- C.45. K. Usevich and **I. Markovsky**. "Adjusted least squares fitting of algebraic hypersurfaces". In: *Linear Algebra Appl.* 502 (2016), pp. 243–274. doi: [10.1016/j.laa.2015.07.023](https://doi.org/10.1016/j.laa.2015.07.023).
- C.46. **I. Markovsky**. "An application of system identification in metrology". In: *Control Eng. Practice* 43 (2015), pp. 85–93. doi: [10.1016/j.conengprac.2015.07.001](https://doi.org/10.1016/j.conengprac.2015.07.001).
- C.47. **I. Markovsky**. "Comparison of adaptive and model-free methods for dynamic measurement". In: *IEEE Signal Proc. Lett.* 22.8 (2015), pp. 1094–1097. doi: [10.1109/LSP.2014.2388369](https://doi.org/10.1109/LSP.2014.2388369).
- C.48. **I. Markovsky** and R. Pintelon. "Identification of linear time-invariant systems from multiple experiments". In: *IEEE Trans. Signal Process.* 63.13 (2015), pp. 3549–3554. doi: [10.1109/TSP.2015.2428218](https://doi.org/10.1109/TSP.2015.2428218).
- C.49. M. Ishteva, K. Usevich, and **I. Markovsky**. "Factorization approach to structured low-rank approximation with applications". In: *SIAM J. Matrix Anal. Appl.* 35.3 (2014), pp. 1180–1204. doi: [10.1137/130931655](https://doi.org/10.1137/130931655).
- C.50. **I. Markovsky**. "Recent progress on variable projection methods for structured low-rank approximation". In: *Signal Processing* 96PB (2014), pp. 406–419. doi: [10.1016/j.sigpro.2013.09.021](https://doi.org/10.1016/j.sigpro.2013.09.021).

- C.51. **I. Markovsky**, J. Goos, K. Usevich, and R. Pintelon. "Realization and identification of autonomous linear periodically time-varying systems". In: *Automatica* 50 (2014), pp. 1632–1640. doi: [10.1016/j.automatica.2014.04.003](https://doi.org/10.1016/j.automatica.2014.04.003).
- C.52. **I. Markovsky** and K. Usevich. "Software for weighted structured low-rank approximation". In: *J. Comp. Appl. Math.* 256 (2014), pp. 278–292. doi: [10.1016/j.cam.2013.07.048](https://doi.org/10.1016/j.cam.2013.07.048).
- C.53. S. Rhode, K. Usevich, **I. Markovsky**, and F. Gauterin. "A Recursive Restricted Total Least-squares Algorithm". In: *IEEE Trans. Signal Process.* 62.21 (2014), pp. 5652–5662. doi: [10.1109/TSP.2014.2350959](https://doi.org/10.1109/TSP.2014.2350959).
- C.54. K. Usevich and **I. Markovsky**. "Optimization on a Grassmann manifold with application to system identification". In: *Automatica* 50 (2014), pp. 1656–1662. doi: [10.1016/j.automatica.2014.04.010](https://doi.org/10.1016/j.automatica.2014.04.010).
- C.55. K. Usevich and **I. Markovsky**. "Variable projection for affinely structured low-rank approximation in weighted 2-norms". In: *J. Comp. Appl. Math.* 272 (2014), pp. 430–448. doi: [10.1016/j.cam.2013.04.034](https://doi.org/10.1016/j.cam.2013.04.034).
- C.56. **I. Markovsky**. "A software package for system identification in the behavioral setting". In: *Control Eng. Practice* 21 (2013), pp. 1422–1436. doi: [10.1016/j.conengprac.2013.06.010](https://doi.org/10.1016/j.conengprac.2013.06.010).
- C.57. **I. Markovsky** and K. Usevich. "Structured low-rank approximation with missing data". In: *SIAM J. Matrix Anal. Appl.* 34.2 (2013), pp. 814–830. doi: [10.1137/120883050](https://doi.org/10.1137/120883050).
- C.58. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. "Recursive identification of Hammerstein systems with application to electrically stimulated muscle". In: *Control Eng. Practice* 20.4 (2012), pp. 386–396. doi: [10.1016/j.conengprac.2011.08.001](https://doi.org/10.1016/j.conengprac.2011.08.001).
- C.59. **I. Markovsky**. "On the complex least squares problem with constrained phase". In: *SIAM J. Matrix Anal. Appl.* 32.3 (2011), pp. 987–992. doi: [10.1137/110826497](https://doi.org/10.1137/110826497).
- C.60. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. "Identification of electrically stimulated muscle models of stroke patients". In: *Control Eng. Practice* 18.4 (2010), pp. 396–407. doi: [10.1016/j.conengprac.2009.12.007](https://doi.org/10.1016/j.conengprac.2009.12.007).
- C.61. **I. Markovsky**. "Bibliography on total least squares and related methods". In: *Statistics and Its Interface* 3 (2010), pp. 329–334.
- C.62. **I. Markovsky**. "Closed-loop data-driven simulation". In: *Int. J. Contr.* 83.10 (2010), pp. 2134–2139. doi: [10.1080/00207179.2010.508093](https://doi.org/10.1080/00207179.2010.508093).
- C.63. **I. Markovsky**, D. Sima, and S. Van Huffel. "Total least squares methods". In: *Wiley Interdisciplinary Reviews: Comput. Stat.* 2.2 (2010), pp. 212–217. doi: [10.1002/wics.65](https://doi.org/10.1002/wics.65).
- C.64. **I. Markovsky** and S. Mahmoodi. "Least-squares contour alignment". In: *IEEE Signal Proc. Letters* 16.1 (2009), pp. 41–44. doi: [10.1109/LSP.2008.2008588](https://doi.org/10.1109/LSP.2008.2008588).
- C.65. **I. Markovsky**. "Structured low-rank approximation and its applications". In: *Automatica* 44.4 (2008), pp. 891–909. doi: [10.1016/j.automatica.2007.09.011](https://doi.org/10.1016/j.automatica.2007.09.011).
- C.66. **I. Markovsky** and M. Niranjan. "Approximate low-rank factorization with structured factors". In: *Comput. Statist. Data Anal.* 54 (2008), pp. 3411–3420. doi: [10.1016/j.csda.2009.06.003](https://doi.org/10.1016/j.csda.2009.06.003).
- C.67. **I. Markovsky** and P. Rapisarda. "Data-driven simulation and control". In: *Int. J. Contr.* 81.12 (2008), pp. 1946–1959. doi: [10.1080/00207170801942170](https://doi.org/10.1080/00207170801942170).
- C.68. A. Kukush, **I. Markovsky**, and S. Van Huffel. "Estimation in a linear multivariate measurement error model with a change point in the data". In: *Comput. Statist. Data Anal.* 52.2 (2007), pp. 1167–1182. doi: [10.1016/j.csda.2007.06.010](https://doi.org/10.1016/j.csda.2007.06.010).

- C.69. **I. Markovsky** and S. Van Huffel. "Left vs right representations for solving weighted low rank approximation problems". In: *Linear Algebra Appl.* 422 (2007), pp. 540–552. doi: [10.1016/j.laa.2006.11.012](https://doi.org/10.1016/j.laa.2006.11.012).
- C.70. **I. Markovsky** and S. Van Huffel. "Overview of total least squares methods". In: *Signal Processing* 87 (2007), pp. 2283–2302. doi: [10.1016/j.sigpro.2007.04.004](https://doi.org/10.1016/j.sigpro.2007.04.004).
- C.71. M. Schuermans, **I. Markovsky**, and S. Van Huffel. "An adapted version of the element-wise weighted TLS method for applications in chemometrics". In: *Chemometrics and Intelligent Laboratory Systems* 85.1 (2007), pp. 40–46. doi: [10.1016/j.chemolab.2006.04.003](https://doi.org/10.1016/j.chemolab.2006.04.003).
- C.72. S. Shklyar, A. Kukush, **I. Markovsky**, and S. Van Huffel. "On the conic section fitting problem". In: *Journal of Multivariate Analysis* 98 (2007), pp. 588–624. doi: [10.1016/j.jmva.2005.12.003](https://doi.org/10.1016/j.jmva.2005.12.003).
- C.73. S. Van Huffel, **I. Markovsky**, R. J. Vaccaro, and T. Söderström. "Guest editorial: Total least squares and errors-in-variables modeling". In: *Signal Processing* 87.10 (Oct. 2007), pp. 2281–2282.
- C.74. A. Kukush, **I. Markovsky**, and S. Van Huffel. "Consistency of the structured total least squares estimator in a multivariate errors-in-variables model". In: *J. Statist. Plann. Inference* 133.2 (2005), pp. 315–358. doi: [10.1016/j.jspi.2003.12.020](https://doi.org/10.1016/j.jspi.2003.12.020).
- C.75. **I. Markovsky** and B. De Moor. "Linear dynamic filtering with noisy input and output". In: *Automatica* 41.1 (2005), pp. 167–171. doi: [10.1016/j.automatica.2004.08.014](https://doi.org/10.1016/j.automatica.2004.08.014).
- C.76. **I. Markovsky**, M. Rastello, A. Premoli, A. Kukush, and S. Van Huffel. "The element-wise weighted total least squares problem". In: *Comput. Statist. Data Anal.* 50.1 (2005), pp. 181–209. doi: [10.1016/j.csda.2004.07.014](https://doi.org/10.1016/j.csda.2004.07.014).
- C.77. **I. Markovsky** and S. Van Huffel. "High-performance numerical algorithms and software for structured total least squares". In: *J. Comp. Appl. Math.* 180.2 (2005), pp. 311–331. doi: [10.1016/j.cam.2004.11.003](https://doi.org/10.1016/j.cam.2004.11.003).
- C.78. **I. Markovsky**, S. Van Huffel, and R. Pintelon. "Block-Toeplitz/Hankel structured total least squares". In: *SIAM J. Matrix Anal. Appl.* 26.4 (2005), pp. 1083–1099. doi: [10.1137/S0895479803434902](https://doi.org/10.1137/S0895479803434902).
- C.79. **I. Markovsky**, J. C. Willems, P. Rapisarda, and B. De Moor. "Algorithms for deterministic balanced subspace identification". In: *Automatica* 41.5 (2005), pp. 755–766. doi: [10.1016/j.automatica.2004.10.007](https://doi.org/10.1016/j.automatica.2004.10.007).
- C.80. **I. Markovsky**, J. C. Willems, S. Van Huffel, B. De Moor, and R. Pintelon. "Application of structured total least squares for system identification and model reduction". In: *IEEE Trans. Automat. Contr.* 50.10 (2005), pp. 1490–1500. doi: [10.1109/TAC.2005.856643](https://doi.org/10.1109/TAC.2005.856643).
- C.81. M. Schuermans, **I. Markovsky**, P. Wentzell, and S. Van Huffel. "On the equivalence between total least squares and maximum likelihood PCA". In: *Analytica Chimica Acta* 544.1–2 (2005), pp. 254–267. doi: [10.1016/j.aca.2004.12.059](https://doi.org/10.1016/j.aca.2004.12.059).
- C.82. J. C. Willems, P. Rapisarda, **I. Markovsky**, and B. De Moor. "A note on persistency of excitation". In: *Systems & Control Lett.* 54.4 (2005), pp. 325–329. doi: [10.1016/j.sysconle.2004.09.003](https://doi.org/10.1016/j.sysconle.2004.09.003).
- C.83. A. Kukush, **I. Markovsky**, and S. Van Huffel. "Consistent estimation in an implicit quadratic measurement error model". In: *Comput. Statist. Data Anal.* 47.1 (2004), pp. 123–147. doi: [10.1016/j.csda.2003.10.022](https://doi.org/10.1016/j.csda.2003.10.022).
- C.84. **I. Markovsky**, A. Kukush, and S. Van Huffel. "Consistent least squares fitting of ellipsoids". In: *Numerische Mathematik* 98.1 (2004), pp. 177–194. doi: [10.1007/s00211-004-0526-9](https://doi.org/10.1007/s00211-004-0526-9).
- C.85. **I. Markovsky**, S. Van Huffel, and A. Kukush. "On the computation of the structured total least squares estimator". In: *Numer. Linear. Algebra Appl.* 11 (2004), pp. 591–608. doi: [10.1002/nla.361](https://doi.org/10.1002/nla.361).

- C.86. A. Kukush, **I. Markovsky**, and S. Van Huffel. "Consistent estimation in the bilinear multivariate errors-in-variables model". In: *Metrika* 57.3 (2003), pp. 253–285. doi: [10.1007/s001840200217](https://doi.org/10.1007/s001840200217).
- C.87. A. Kukush, **I. Markovsky**, and S. Van Huffel. "Consistent fundamental matrix estimation in a quadratic measurement error model arising in motion analysis". In: *Comput. Statist. Data Anal.* 41.1 (2002), pp. 3–18. doi: [10.1016/S0167-9473\(02\)00068-3](https://doi.org/10.1016/S0167-9473(02)00068-3).
- C.88. M. Lemmon, K. He, and **I. Markovsky**. "Supervisory Hybrid Systems". In: *IEEE Control Systems Magazine* 19.4 (Aug. 1999), pp. 42–55. doi: [10.1109/37.777788](https://doi.org/10.1109/37.777788).

## D. Articles in conference proceedings (internationally peer reviewed)

---

- D.1. **I. Markovsky**, J. Eising, and A. Padoan. "How to represent and identify affine time-invariant systems?" In: *Proc of the Conf. on Decision and Control*. 2025.
- D.2. A. Sasfi, **I. Markovsky**, A. Padoan, and F. Dörfler. "Gaussian behaviors: Representations and data-driven control". In: *Proc of the Conf. on Decision and Control*. 2025.
- D.3. **I. Markovsky**. "The Behavioral Toolbox". In: *Proc. of Machine Learning Research*. Vol. 242. 2024, pp. 130–141.
- D.4. J. Wang, L. Hemelhof, **I. Markovsky**, and P. Patrinos. "A trust-region method for data-driven iterative learning control of nonlinear systems". In: *Proc of the Conf. on Decision and Control*. 2024.
- D.5. L. Hemelhof, **I. Markovsky**, and P. Patrinos. "Data-Driven Output Matching of Output-Generalized Bilinear and Linear Parameter-Varying systems". In: *Proc of the European Control Conf.* 2023, pp. 1525–1530. doi: [10.23919/ECC57647.2023.10178404](https://doi.org/10.23919/ECC57647.2023.10178404).
- D.6. A. Fazzi, N. Guglielmi, **I. Markovsky**, and K. Usevich. "Common dynamic estimation via structured low-rank approximation with multiple rank constraints". In: *Proc of the 19th IFAC Symp. on System Identification*. Vol. 54. 2021, pp. 103–107. doi: [10.1016/j.ifacol.2021.08.342](https://doi.org/10.1016/j.ifacol.2021.08.342).
- D.7. **I. Markovsky**. "System theory without transfer functions and state-space? Yes, it's possible!" In: *Proc of the 60th IEEE Conf. on Decision and Control*. 2021. doi: [10.1109/CDC45484.2021.9682958](https://doi.org/10.1109/CDC45484.2021.9682958).
- D.8. V. Mishra, **I. Markovsky**, A. Fazzi, and P. Dreesen. "Data-Driven Simulation for NARX Systems". In: *Proc. of the European Association for Signal Processing*. 2021. doi: [10.23919/EUSIPCO54536.2021.9616226](https://doi.org/10.23919/EUSIPCO54536.2021.9616226).
- D.9. V. Mishra, **I. Markovsky**, and B. Grossmann. "Data-Driven Tests for Controllability". In: *Proc of the 59th IEEE Conf. on Decision and Control*. 2020.
- D.10. D. Verbeke and **I. Markovsky**. "Line spectral estimation with palindromic kernels". In: *Proc. of the Int. Conf. on Acoustics, Speech, and Signal Processing*. Barcelona, 2020, pp. 5960–5963. doi: [10.1109/ICASSP40776.2020.9053514](https://doi.org/10.1109/ICASSP40776.2020.9053514).
- D.11. P. Dreesen and **I. Markovsky**. "Data-Driven Simulation Using The Nuclear Norm Heuristic". In: *Proc. of the Int. Conf. on Acoustics, Speech, and Signal Processing*. Brighton, UK, 2019. doi: [10.1109/icassp.2019.8682993](https://doi.org/10.1109/icassp.2019.8682993).
- D.12. A. Fazzi, N. Guglielmi, and **I. Markovsky**. "Computing common factors of matrix polynomials with applications in system and control theory". In: *Proc. of the IEEE Conf. on Decision and Control*. Nice, France, Dec. 2019, pp. 7721–7726. doi: [978-1-7281-1397-5/19/](https://doi.org/10.1109/CDCC.2019.9053514).
- D.13. **I. Markovsky**, T. Liu, and A. Takeda. "Subspace methods for multi-channel sum-of-exponentials common dynamics estimation". In: *Proc. of the IEEE Conf. on Decision and Control*. 2019, pp. 2672–2675. doi: [978-1-7281-1397-5/19/](https://doi.org/10.1109/CDCC.2019.9053514).



- D.14. K. Usevich and **I. Markovsky**. "Software package for mosaic-Hankel structured low-rank approximation". In: *Proc. of the IEEE Conf. on Decision and Control*. Nice, France, Dec. 2019, pp. 7165–7170. doi: [978-1-7281-1397-5/19/](https://doi.org/10.1109/1-7281-1397-5/19/).
- D.15. S. Formentin and **I. Markovsky**. "A comparison between structured low-rank approximation and correlation approach for data-driven output tracking". In: *Proc. of the IFAC Symp. on System Identification*. 2018, pp. 1068–1073. doi: [10.1016/j.ifacol.2018.09.052](https://doi.org/10.1016/j.ifacol.2018.09.052).
- D.16. M. Zhang, **I. Markovsky**, C. Schretter, and J. D'hooge. "Ultrasound signal reconstruction from sparse samples using a low-rank and joint-sparse model". In: *Proc. of iTWIST'18, Paper-ID: 21*. Marseille, France, 2018. doi: [10.1109/ultsym.2018.8579777](https://doi.org/10.1109/ultsym.2018.8579777).
- D.17. **I. Markovsky**. "Application of low-rank approximation for nonlinear system identification". In: *Proc of the 25th IEEE Mediterranean Conf. on Control and Automation*. Valletta, Malta, July 2017, pp. 12–16. isbn: 978-1-5090-4532-7/17. doi: [10.1109/med.2017.7984088](https://doi.org/10.1109/med.2017.7984088).
- D.18. **I. Markovsky**, O. Debals, and L. De Lathauwer. "Sum-of-Exponentials Modeling and Common Dynamics Estimation Using Tensorlab". In: *Proc of the 20th World Congress of the Int. Federation of Automatic Control*. Toulouse, France, July 2017, pp. 14715–14720. doi: [10.1016/j.ifacol.2017.08.2077](https://doi.org/10.1016/j.ifacol.2017.08.2077).
- D.19. **I. Markovsky** and N. Guglielmi. "Model order estimation based on a method for computing distance to uncontrollability". In: *Proc. of the Conf. on Noise and Vibration Engineering*. Leuven, Belgium, Sept. 2016, pp. 2963–2970. isbn: 9789073802940.
- D.20. G. Mercèr, **I. Markovsky**, and J. Ramos. "Innovation-based subspace identification in open- and closed-loop". In: *Proc. of the 55th IEEE Conf. on Decision and Control*. Las Vegas, USA, Dec. 2016. doi: [10.1109/CDC.2016.7798709](https://doi.org/10.1109/CDC.2016.7798709).
- D.21. M. Ishteva and **I. Markovsky**. "Tensor low multilinear rank approximation by structured matrix low-rank approximation". In: *Proc. of 21st Int. Symp. on Mathematical Theory of Networks and Systems*. Groningen, The Netherlands, July 2014, pp. 1808–1812. isbn: 978-90-367-6321-9.
- D.22. **I. Markovsky** and R. Pintelon. "Consistent estimation of autonomous linear time-invariant systems from multiple experiments". In: *Proc. of the Conf. on Noise and Vibration Engineering*. Leuven, Belgium, Sept. 2014, pp. 3265–3268. isbn: 9789073802919.
- D.23. **I. Markovsky**. "Approximate identification with missing data". In: *Proc. of the 52nd IEEE Conf. on Decision and Control*. Florence, Italy, Dec. 2013, pp. 156–161. doi: [10.1109/CDC.2013.6759875](https://doi.org/10.1109/CDC.2013.6759875).
- D.24. **I. Markovsky**. "Exact identification with missing data". In: *Proc. of the 52nd IEEE Conf. on Decision and Control*. Florence, Italy, 2013, pp. 151–155. doi: [10.1109/CDC.2013.6759874](https://doi.org/10.1109/CDC.2013.6759874).
- D.25. **I. Markovsky**. "Dynamical systems and control mindstorms". In: *Proc. of the 20th Mediterranean Conf. on Control and Automation*. Barcelona, 2012, pp. 54–59. doi: [10.1109/MED.2012.6265614](https://doi.org/10.1109/MED.2012.6265614).
- D.26. **I. Markovsky**. "How effective is the nuclear norm heuristic in solving data approximation problems?" In: *Proc. of the 16th IFAC Symp. on System Identification*. Brussels, 2012, pp. 316–321. isbn: 978-3-902823-06-9. doi: [10.3182/20120711-3-BE-2027.00125](https://doi.org/10.3182/20120711-3-BE-2027.00125).
- D.27. K. Usevich and **I. Markovsky**. "Structured low-rank approximation as a rational function minimization". In: *Proc. of the 16th IFAC Symp. on System Identification*. Brussels, 2012, pp. 722–727. doi: [10.3182/20120711-3-BE-2027.00143](https://doi.org/10.3182/20120711-3-BE-2027.00143).
- D.28. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. "Online identification of electrically stimulated muscle models". In: *Proc. of the American Control Conf.* San Francisco, USA, June 2011, pp. 90–95. isbn: 978-1-4577-0080-4. doi: [10.1109/ACC.2011.5991136](https://doi.org/10.1109/ACC.2011.5991136).

- D.29. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. "Recursive Identification of Hammerstein Structure". In: *Proc. of the 18th IFAC World Congress*. Vol. 44. Milano, Italy, Aug. 2011, pp. 13954–13959. doi: [10.3182/20110828-6-it-1002.00313](https://doi.org/10.3182/20110828-6-it-1002.00313).
- D.30. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. "Identification of Electrically Stimulated Muscle after Stroke". In: *Proc. of the European Control Conf.* Budapest, Hungary, Aug. 2009, pp. 1576–1581. doi: [10.23919/ECC.2009.7074631](https://doi.org/10.23919/ECC.2009.7074631).
- D.31. **I. Markovsky**. "An algorithm for closed-loop data-driven simulation". In: *Proc of the 15th IFAC Symp. on System Identification*. Saint-Malo, France, July 2009, pp. 114–115. doi: [10.3182/20090706-3-fr-2004.00018](https://doi.org/10.3182/20090706-3-fr-2004.00018).
- D.32. **I. Markovsky**. "Applications of structured low-rank approximation". In: *Proc of the 15th IFAC Symp. on System Identification*. Saint-Malo, France, July 2009, pp. 1121–1126. doi: [10.3182/20090706-3-FR-2004.00186](https://doi.org/10.3182/20090706-3-FR-2004.00186).
- D.33. M. Przedwojski, **I. Markovsky**, and E. Rogers. "Identifiability of clock synchronization errors: a behavioural approach". In: *Proc of the 48th IEEE Conf. on Decision and Control*. Shanghai, China, 2009, pp. 8095–8100. doi: [10.1109/cdc.2009.5399867](https://doi.org/10.1109/cdc.2009.5399867).
- D.34. **I. Markovsky**, A. Amann, and S. Van Huffel. "Application of Filtering Methods for Removal of Resuscitation Artifacts from Human ECG Signals". In: *Proc. of the 30th Conf. of IEEE Eng. in Medicine and Biology Soc.* Vancouver, Canada, Aug. 2008, pp. 13–16. doi: [10.1109/IEMBS.2008.4649079](https://doi.org/10.1109/IEMBS.2008.4649079).
- D.35. **I. Markovsky** and S. Rao. "Palindromic polynomials, time-reversible systems, and conserved quantities". In: *Proc of the 16th Mediterranean Conf. on Control and Automation*. Ajaccio, France, June 2008, pp. 125–130. doi: [10.1109/MED.2008.4602018](https://doi.org/10.1109/MED.2008.4602018).
- D.36. P. Rapisarda and **I. Markovsky**. "Why "state" feedback?" In: *Proc. of the 17th IFAC World Congress*. Seoul, Korea, July 2008, pp. 12285–12290. doi: [10.3182/20080706-5-KR-1001.3661](https://doi.org/10.3182/20080706-5-KR-1001.3661).
- D.37. **I. Markovsky** and P. Rapisarda. "On the linear quadratic data-driven control". In: *Proc. of the European Control Conf.* Kos, Greece, July 2007, pp. 5313–5318. doi: [10.23919/ecc.2007.7068299](https://doi.org/10.23919/ecc.2007.7068299).
- D.38. **I. Markovsky**, J. Boets, B. Vanluyten, K. De Cock, and B. De Moor. "When is a pole spurious?" In: *Proc. of the Int. Conf. on Noise and Vibration Engineering*. Leuven, Belgium, 2006, pp. 1615–1626.
- D.39. **I. Markovsky**, A. Kukush, and S. Van Huffel. "On errors-in-variables estimation with unknown noise variance ratio". In: *Proc. of the 14th IFAC Symp. on System Identification*. Newcastle, Australia, 2006, pp. 172–177. doi: [10.3182/20060329-3-au-2901.00021](https://doi.org/10.3182/20060329-3-au-2901.00021).
- D.40. **I. Markovsky** and S. Van Huffel. "An algorithm for approximate common divisor computation". In: *Proc. of the 17th Symp. on Math. Theory of Networks and Systems*. Kyoto, Japan, 2006, pp. 274–279.
- D.41. **I. Markovsky**, J. C. Willems, and B. De Moor. "Comparison of identification algorithms on the database for system identification DAISY". In: *Proc. of the 17th Symp. on Math. Theory of Networks and Systems*. Kyoto, Japan, 2006, pp. 2858–2869.
- D.42. **I. Markovsky**, J. C. Willems, and B. De Moor. "Recursive computation of the most powerful unfalsified model". In: *Proc. of the 14th IFAC Symp. on System Identification*. Newcastle, Australia, 2006, pp. 588–593. doi: [10.3182/20060329-3-AU-2901.00090](https://doi.org/10.3182/20060329-3-AU-2901.00090).
- D.43. **I. Markovsky**, J. C. Willems, and B. De Moor. "Software for exact linear system identification". In: *Proc. of the 17th Symp. on Math. Theory of Networks and Systems*. Kyoto, Japan, 2006, pp. 1475–1483. doi: [10.1109/cdc.2005.1582380](https://doi.org/10.1109/cdc.2005.1582380).



- D.44. **I. Markovsky**, J. C. Willems, and B. De Moor. "The module structure of ARMAX systems". In: *Proc. of the 41st Conf. on Decision and Control*. San Diego, USA, 2006, pp. 811–816. doi: [10.1109/CDC.2006.377656](https://doi.org/10.1109/CDC.2006.377656).
- D.45. J. C. Willems, **I. Markovsky**, and B. De Moor. "State construction in subspace identification". In: *Proc. of the 14th IFAC Symp. on System Identification*. Newcastle, Australia, 2006, pp. 303–308. doi: [10.3182/20060329-3-au-2901.00043](https://doi.org/10.3182/20060329-3-au-2901.00043).
- D.46. **I. Markovsky**, J. C. Willems, and B. De Moor. "State representations from finite time series". In: *Proc. of the 44th Conf. on Decision and Control*. Seville, Spain, 2005, pp. 832–835. doi: [10.1109/CDC.2005.1582260](https://doi.org/10.1109/CDC.2005.1582260).
- D.47. **I. Markovsky**, J. C. Willems, P. Rapisarda, and B. De Moor. "Data driven simulation with applications to system identification". In: *Proc. of the 16th IFAC World Congress*. Prague, Czech Republic, 2005. doi: [10.3182/20050703-6-cz-1902.00163](https://doi.org/10.3182/20050703-6-cz-1902.00163).
- D.48. **I. Markovsky**, J. C. Willems, S. Van Huffel, and B. De Moor. "Software for approximate linear system identification". In: *Proc. of the 44th Conf. on Decision and Control*. Seville, Spain, 2005, pp. 1559–1564. doi: [10.1109/CDC.2005.1582380](https://doi.org/10.1109/CDC.2005.1582380).
- D.49. **I. Markovsky**, S. Van Huffel, and B. De Moor. " $\mathcal{H}_2$ -optimal linear parametric design". In: *Proc. of the 16th Int. Symp. on Math. Theory of Networks and Systems*. 2004.
- D.50. **I. Markovsky**, J. C. Willems, S. Van Huffel, B. De Moor, and R. Pintelon. "Application of structured total least squares for system identification". In: *Proc. of the 43rd Conf. on Decision and Control*. Atlantis, Paradise Island, Bahamas, 2004, pp. 3382–3387. doi: [10.1109/cdc.2004.1429229](https://doi.org/10.1109/cdc.2004.1429229).
- D.51. J. C. Willems, **I. Markovsky**, P. Rapisarda, and B. De Moor. "A note on persistency of excitation". In: *Proc. of the 43rd Conf. on Decision and Control*. Atlantis, Paradise Island, Bahamas, 2004, pp. 2630–2631. doi: [10.1109/cdc.2004.1428856](https://doi.org/10.1109/cdc.2004.1428856).
- D.52. **I. Markovsky** and B. De Moor. "Linear dynamic filtering with noisy input and output". In: *Proc. of the 13th IFAC Symp. on System Identification*. Rotterdam, The Netherlands, 2003, pp. 1749–1754. doi: [10.1016/s1474-6670\(17\)35007-3](https://doi.org/10.1016/s1474-6670(17)35007-3).
- D.53. **I. Markovsky**, S. Van Huffel, and B. De Moor. "Multi-model system parameter estimation". In: *Proc. of the IEEE Int. Conf. on Systems, Man, and Cybernetics*. 2002. doi: [10.1109/icsmc.2002.1176410](https://doi.org/10.1109/icsmc.2002.1176410).
- D.54. **I. Markovsky**, J. C. Willems, and B. De Moor. "Continuous-time errors-in-variables filtering". In: *Proc. of the 41st Conf. on Decision and Control*. Las Vegas, NV, 2002, pp. 2576–2581. doi: [10.1109/CDC.2002.1184226](https://doi.org/10.1109/CDC.2002.1184226).
- D.55. N. Madjarov, L. Mihailova, and **I. Markovsky**. "An Algorithm for Parallel Adaptive Control of Stochastic Systems". In: *Proc. of the Bulgarian National Conf. on Informatics and Automatics*. 1997, pp. 5–8.