

СПИСЪК

на научните трудове и учебните помагала

на доц. д-р инж. Александра Иванова Грънчарова

за участие в конкурса за заемане на академичната длъжност „професор” по научната специалност 5.2. Електротехника, електроника и автоматика (Автоматизация на производството), обявен от ХТМУ в ДВ брой 66 от 15.08.2017г.

А. Учебници и учебни помагала

- A1. **А. Грънчарова**, „Проектиране и анализ на системи за управление”, *учебник* по дисциплината „Проектиране и анализ на системи за управление” за бакалаври от специалността „Биомедицинско инженерство”, ХТМУ-София, 2017, 117 страници, ISBN: 978-954-465-090-2.

В. Публикации, равностойни на монографичен труд на тема “Методи за явно моделно предсказващо управление на детерминирани нелинейни динамични системи”

Включва следните научни трудове, публикувани в специализирани научни издания:

- B1. **A. Grancharova**, T. A. Johansen, chapter “Multi-parametric programming”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.1-37, 2012 (**глава от монография**).
- B2. **A. Grancharova**, T. A. Johansen, chapter “Explicit NMPC via approximate mp-NLP”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.87-110, 2012 (**глава от монография**).
- B3. **A. Grancharova**, T. A. Johansen, chapter “Explicit approximate model predictive control of constrained nonlinear systems with quantized input”, In: L. Magni, D. M. Raimondo and F. Allgöwer, editors, *Nonlinear Model Predictive Control: Towards New Challenging Applications, Lecture Notes in Control and Information Sciences*, vol.384, ISBN: 978-3-642-01093-4, Springer-Verlag, Berlin/Heidelberg, Germany, pp.371-380, 2009 (**глава от книга, която има монографичен характер**).

- B4. **A. Grancharova**, T. A. Johansen, chapter “Explicit MPC of constrained nonlinear systems with quantized inputs”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.111-125, 2012 (глава от монография).
- B5. **A. Grancharova**, T. A. Johansen, chapter “Explicit NMPC based on neural network models”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.187-207, 2012 (глава от монография).
- B6. **A. Grancharova**, J. Kocijan, T. A. Johansen, “Explicit output-feedback nonlinear predictive control based on black-box models”, *Engineering Applications of Artificial Intelligence*, ISSN: 0952-1976, vol.24, No.2, pp.388-397, 2011.
(Impact factor for year 2011: **1.665**)
- B7. **A. Grancharova**, T. A. Johansen, “Design and comparison of explicit model predictive controllers for an electropneumatic clutch actuator using on/off valves”, *IEEE/ASME Transactions on Mechatronics*, ISSN: 1083-4435, vol.16, No.4, pp.665-673, 2011.
(Impact factor for year 2011: **2.865**)
- B8. **A. Grancharova**, T. A. Johansen, P. Tøndel, ”Computational aspects of approximate explicit nonlinear model predictive control”, *Proceedings of the International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control*, Freudenstadt-Lauterbad, Germany, 26-30 August, 2005, pp.85-96.
- B9. **A. Grancharova**, T. A. Johansen, “Explicit model predictive control of an electropneumatic clutch actuator using on/off valves and pulse-width modulation”, *Proceedings of European Control Conference*, Budapest, Hungary, 23-26 August, 2009, pp.4278-4283.
- B10. **A. Grancharova**, J. Kocijan, “A parallel computing algorithm for design of explicit nonlinear model predictive controllers”, *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1850, Sofia, Bulgaria, 3-7 October, 2010, pp.I-233-I-236.
- B11. **A. Grancharova**, “Design of explicit model predictive controllers based on orthogonal partition of the parameter space: Methods and a software tool”, *Proceedings of the 16-th IFAC Conference on Technology, Culture and International Stability (TECIS 2015)*, Sozopol, Bulgaria, 24-27 September, 2015.
- B12. **А. Грънчарова**, “Програмен пакет за синтез на явни моделно предсказващи регулатори на базата на ортогонално разделяне на пространството на параметрите”, *Сборник с доклади на 23-ия Международен Симпозиум по Управление на енергийни, индустриални и екологични системи*, ISSN: 1313-2237, Банкя, 14-15 май, 2015, стр.79-82.

С. Публикации в специализирани научни издания (извън публикациите, посочени в точка В)

- C1. N. Abdulazim, H. Pu, **A. Grancharova**, J. Zaprianov, H. A. Nour Eldin, chapter “The “l.i.p” gymnastic method with two arm movements for the robot link parameter identification (DLD robot type, Manutec R2)“, In: *Computational Intelligence for Modelling, Control and Automation – Neural Networks and Advanced Control Strategies (Concurrent Systems Engineering Series)*, Ed. M. Mohammadian, IOS Press, vol.54, pp.255-261, 1999 (глава от книга, която има монографичен характер).
- C2. **A. Grancharova**, T. A. Johansen, chapter “Explicit stochastic NMPC”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.157-186, 2012 (глава от монография).
- C3. **A. Grancharova**, T. A. Johansen, chapter “Explicit min-max MPC of constrained nonlinear systems with bounded uncertainties”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.127-156, 2012 (глава от монография).
- C4. **A. Grancharova**, T. A. Johansen, chapter “Semi-explicit distributed NMPC”, In: A. Grancharova and T. A. Johansen, *Explicit Nonlinear Model Predictive Control: Theory and Applications, Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, pp.209-231, 2012 (глава от монография).
- C5. **A. Grancharova**, T. A. Johansen, chapter “Distributed model predictive control of interconnected nonlinear systems by dynamic dual decomposition”, In: *Distributed Model Predictive Control Made Easy*, Eds. J. M. Maestre and R. R. Negenborn, **Series: Intelligent Systems, Control and Automation: Science and Engineering**, vol.69, ISBN: 978-94-007-7005-8, Springer-Verlag, pp.293-308, 2014 (глава от книга, която има монографичен характер).
- C6. J. Kocijan, **A. Grancharova**, chapter “Application of Gaussian processes to the modeling and control in process engineering”, In: V. E. Balas et al. (eds.), *Innovations in Intelligent Machines-5, Studies in Computational Intelligence 561*, Springer-Verlag, pp.155-190, 2014 (глава от книга, която има монографичен характер).
- C7. **A. Grancharova**, S. Oлару, chapter “Distributed robust model predictive control of interconnected polytopic systems”, In: S. Oлару, **A. Grancharova**, F. Lobo Pereira (Eds.), *Developments in Model-Based Optimization and Control: Distributed Control and Industrial Applications, Lecture Notes in Control and Information Sciences*, Vol. 464, Springer-Verlag, pp.73-91, 2015 (глава от книга, която има монографичен характер).

- C8. M. T. Nguyen, C. Stoica Maniu, S. Olaru, **A. Grancharova**, chapter “Formation Reconfiguration Using Model Predictive Control Techniques for Multi-agent Dynamical Systems”, In: S. Olaru, **A. Grancharova**, F. Lobo Pereira (Eds.), *Developments in Model-Based Optimization and Control: Distributed Control and Industrial Applications, Lecture Notes in Control and Information Sciences*, Vol. 464, Springer-Verlag, pp.183-205, 2015 (глава от книга, която има монографичен характер).
- C9. M. Hadjiski, **A. Grancharova**, K. Boshnakov, chapter “Intelligent two-level optimization and model predictive control of degrading plants”, In: V. Sgurev, V. Piuri, V. Jotsov (Eds.), *Learning Systems from Theory to Practice, Series on Computational Intelligence*, Springer, Heidelberg, 2018, in press, (глава от книга, която има монографичен характер).
- C10. **A. Grancharova**, T. A. Johansen, “Computation, approximation and stability of explicit feedback min-max nonlinear model predictive control”, *Automatica*, vol.45, No.5, pp.1134-1143, 2009.
(Impact factor for year 2009: **2.631**)
- C11. A. Krastev, **A. Grancharova**, B. Rossnev, “Estimation of ozone induced leaves injuries from picture images”, *Proceedings of BAS*, ISSN: 1310-1331, vol.64, No.7, pp.1027-1034, 2011.
(Impact factor for year 2011: **0.210**)
- C12. D. Petelin, **A. Grancharova**, J. Kocijan, “Evolving Gaussian process models for prediction of ozone concentration in the air”, *Simulation Modelling Practice and Theory (Special issue EUROSIM 2010)*, ISSN: 1569-190X, vol.33, pp.68-80, 2013.
(Impact factor for year 2012: **1.159**)
- C13. I. Madjarov, J. Kocijan, **A. Grancharova**, B. Shishedjiev, “Towards a service-based framework for environmental data processing”, *International Journal of Advanced Computer Science and Applications*, ISSN: 2158-107X, vol.5, No.4, pp.44-51, 2014.
- C14. **A. Grancharova**, E. I. Grøtli, D. T. Ho, T. A. Johansen, “UAVs trajectory planning by distributed MPC under radio communication path loss constraints”, *Journal of Intelligent and Robotic Systems*, vol.79, pp.115-134, DOI 10.1007/s10846-014-0090-1, 2015.
(Impact factor for year 2014: **1.178**)
- C15. M. Stepančič, **A. Grancharova**, J. Kocijan, “Adaptive MPC based on probabilistic black-box input-output model”, *Proceedings of BAS*, ISSN: 1310-1331, vol.68, No.6, pp.767-774, 2015.
(Impact factor for year 2014: **0.284**)
- C16. **A. Grancharova**, S. Olaru, “An approach to distributed min-max model predictive control of linear systems with parametric uncertainty”, *Information Technologies and Control (The Journal of Institute of Information and Communication Technologies of Bulgarian Academy of Sciences)*, ISSN:1312-2622, vol.13, No.1-2, pp.2-9, 2015.
- C17. N. Abdulazim, H. Pu, H. A. Nour Eldin, **A. Grancharova**, J. Zaprianov, “Planar robot gymnastics for parameter identification”, *Preprints of 9-th IFAC Symposium on*

Information Control in Manufacturing, Nancy-Metz, France, 24-26 June, 1998, vol.2, pp.363-368.

- C18. **A. Grancharova**, J. Zaprianov, "Decision support system for rating control alternatives", *Proceedings of 16-th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation*, Lausanne, Switzerland, 21-25 August, 2000.
- C19. **A. Grancharova**, "General strategy for decision support in integrated process synthesis, design and control", *Proceedings of 11-th European Symposium on Computer Aided Process Engineering*, Kolding, Denmark, 27-30 May, 2001, pp.1003-1008.
- C20. **A. Grancharova**, J. Kocijan, T. A. Johansen, "Explicit stochastic nonlinear predictive control based on Gaussian process models", *Proceedings of the European Control Conference*, Kos, Greece, 2-5 July, 2007, pp.2340-2347.
- C21. **A. Grancharova**, J. Kocijan, "Stochastic predictive control of a thermoelectric power plant", *Proceedings of the International Conference on Automatics and Informatics*, Sofia, Bulgaria, 3-6 October, 2007, vol. II, pp.I-13-I-16.
- C22. **A. Grancharova**, T. A. Johansen, "Approaches to explicit nonlinear model predictive control with reduced partition complexity", *Proceedings of European Control Conference*, Budapest, Hungary, 23-26 August, 2009, pp.2414-2419.
- C23. **A. Grancharova**, D. Nedialkov, J. Kocijan, H. Hristova, A. Krastev, "Application of Gaussian processes to the prediction of ozone concentration in the air of Bourgas", *Proceedings of International Conference on Automatics and Informatics*, Sofia, Bulgaria, October, 2009, pp.IV-17-IV-20.
- C24. **A. Grancharova**, T. A. Johansen, "A computational approach to explicit feedback stochastic nonlinear model predictive control", *Proceedings of the 49-th IEEE Conference on Decision and Control*, ISSN: 0191-2216, Atlanta, USA, 15-17 December, 2010, pp.6083-6088.
- C25. **A. Grancharova**, T. A. Johansen, "Distributed quasi-nonlinear model predictive control by dual decomposition", *Proceedings of the 18-th IFAC World Congress*, Milano, Italy, 28 August - 2 September, 2011, pp.1429-1434.
- C26. **A. Grancharova**, T. A. Johansen, "Suboptimality analysis of distributed quasi-nonlinear model predictive control", *Proceedings of the 4-th IFAC Conference on Nonlinear Model Predictive Control 2012 (NMPC'12)*, Noordwijkerhout, Netherlands, 23-27 August, 2012, pp.522-528.
- C27. **A. Grancharova**, E. I. Grøtli, T. A. Johansen, "Distributed path planning for a UAV communication chain by dual decomposition", *Proceedings of the 2-nd IFAC Workshop on Multivehicle Systems*, Espoo, Finland, 3-4 October 2012.
- C28. **А. Кръстев, А. Грънчарова, Б. Роснев, К. Велинова**, "Оценка на чувствителността на някои широколистни горскодървесни видове към озон", *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1869, Sofia, Bulgaria, 3-5 October, 2012, pp.278-281.

- C29. А. Кръстев, **А. Грънчарова**, Б. Роснев, “Оценка на увреждания причинени от озон по листа на обикновен явор (*Acer pseudoplatanus L.*)”, *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1869, Sofia, Bulgaria, 3-5 October, 2012, pp.282-285.
- C30. **A. Grancharova**, E. I. Grøtli, T. A. Johansen, “Rotary-wing UAVs trajectory planning by distributed linear MPC with reconfigurable communication network topologies”, *Proceedings of the 4-th IFAC Workshop on Distributed Estimation and Control in Networked Systems*, ISBN: 978-3-902823-55-7, Rhine-Moselle-Hall, Koblenz, Germany, 25-26 September, 2013, pp. 198-205.
- C31. **A. Grancharova**, S. Oлару, “An approach to distributed robust model predictive control of discrete-time polytopic systems”, *Proceedings of the 19-th IFAC World Congress*, Cape Town, South Africa, 24-29 August, 2014, pp.2576-2581.
- C32. **A. Grancharova**, S. Oлару, “Explicit interpolation-based nonlinear model predictive control with a convex approximation of the feasible set”, *Proceedings of the 2014 IEEE International Conference on Control Applications (CCA), Part of the 2014 IEEE Multi-conference on Systems and Control*, ISBN: 978-1-4799-7408-5, Antibes, France, 8-10 October, 2014, pp.1824-1830.
- C33. I. Madjarov, **A. Grancharova**, “A concept for service-based workflow for scientific data processing and prediction of environmental parameters”, *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1869, Sofia, Bulgaria, 1-3 October, 2014, pp.I-145-I-148.
- C34. M. T. Nguyen, C. Stoica Maniu, S. Oлару, **A. Grancharova**, “Fault tolerant predictive control for multi-agent dynamical systems: Formation reconfiguration using set-theoretic approach”, *Proceedings of the International Conference on Control, Decision and Information Technologies 2014 (CoDIT'14)*, Metz, France, 3-5 November, 2014.
- C35. **А. Грънчарова**, “Разпределено минимаксно моделно предсказващо управление на линейни системи с параметрична неопределеност”, *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1869, Sofia, Bulgaria, 4-7 October, 2015, pp.31-34.
- C36. **A. Grancharova**, T. A. Johansen, V. Petrova, “Distributed nonlinear model predictive control by sequential linearization and accelerated gradient method”, *Proceedings of the 11-th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems (DYCOPS-CAB)*, Trondheim, Norway, 6-8 June, 2016, pp.597-602.
- C37. M. Hadjiski, **A. Grancharova**, V. Petrova, K. Boshnakov, “An intelligent model predictive control-based strategy for plantwide optimization of degrading plants”, *Proceedings of the 8-th IEEE International Conference on Intelligent Systems*, Sofia, Bulgaria, 4-6 September, 2016, pp.388-393.
- C38. Е. Шалганов, Н. Мандев, В. Петрова, **А. Грънчарова**, „Синтез на явен моделно предсказващ регулатор за поддържане на температурата в резервоар”, *Proceedings*

of the International Conference on Automatics and Informatics, Sofia, Bulgaria, 4-5 October, 2016, pp.201-204.

- C39. **A. Grancharova**, S. Oлару, "Low complexity distributed model predictive control by using contractive sets", *Proceedings of the 20-th IFAC Worlds Congress*, Toulouse, France, 9-14 July, 2017, pp.13706-13711.
- C40. M. Hadjiski, N. Deliiski, **A. Grancharova**, "Application of neural networks to the optimization of the thermal treatment process of wood materials", *Материали от 25-тия международен симпозиум "Управление на енергийни, индустриални и екологични системи"*, 11-12 май, гр. Банкя, 2017, стр.65-68.

D. Монография (включва 7 от главите, посочени в точки В и С (B1, B2, B4, B5, C2, C3, C4), и 2 глави, които не са включени в точки В и С)

- D1. **A. Grancharova**, T. A. Johansen, "Explicit Nonlinear Model Predictive Control: Theory and Applications", *Lecture Notes in Control and Information Sciences*, vol.429, ISBN-Print: 978-3-642-28779-4, ISBN-Ebook: 978-3-642-28780-0, Springer-Verlag, Heidelberg, Germany, 2012, 234 pages (глави 2 и 3 от монографията не са включени в точки В и С на списъка).

E. Редактирана научна книга (извън публикациите, посочени в точки В, С и D)

- E1. S. Oлару, **A. Grancharova**, F. Lobo Pereira (Editors), "Developments in Model-Based Optimization and Control: Distributed Control and Industrial Applications", *Lecture Notes in Control and Information Sciences*, Vol. 464, ISBN-Print: 978-3-319-26685-5, ISBN-Ebook: 978-3-319-26687-9, Springer-Verlag, 2015, 381 pages.

Брой на научните трудове по видове.

ВИД НА НАУЧНИЯ ТРУД	НА АНГЛИЙСКИ ЕЗИК	НА БЪЛГАРСКИ ЕЗИК	ОБЩО
Глави от книги, издадени в чужбина на чужд език, (по решение на АС на ХТМУ еквивалент на 2 публикации в списания с IF)	14		14
Статии в списания с импакт фактор	7		7 (сумарен импакт фактор: 9,992)
Статии в списания без импакт фактор	2		2
Доклади на международни конференции в чужбина в пълен текст	16		16
Доклади на международни конференции в България в пълен текст	3		3
Доклади на конференции в България с международно участие в пълен текст	4	4	8
Доклади на национални конференции в пълен текст	1	1	2
Монографии	1		1
Редактирани научни книги	1		1
Общо научни трудове в пълен текст	49	5	54
Общо			54