

СПИСЪК

на научните трудове и учебните помагала

на доц. д-р инж. Александра Иванова Грънчарова

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А. Учебници и учебни помагала

- A1. **А. Грънчарова**, “Управление на базата на модели”, *учебник* по дисциплината „Управление на базата на модели”, за магистри от специалността „Автоматика и информационни технологии”, 147 страници, одобрен с решение на факултетния съвет на Факултета по химично и системно инженерство на ХТМУ-София от 09.10.2014.
- A2. **А. Грънчарова**, “Оптимални и робастни системи”, *записки от лекции* по дисциплината „Оптимални, робастни и адаптивни системи”, за магистри от специалността „Автоматика и информационни технологии”, 80 страници, ХТМУ-София, 2014.

В. Монографии

- B1. **А. Грънчарова**, “Методи за експлицитно моделно предсказващо управление на линейни системи”, **равностойни на монографичен труд публикации**.

Включва следните научни трудове, публикувани в специализирани научни издания:

- B1.1. **A. Grancharova**, T. A. Johansen, ”Survey of explicit approaches to constrained optimal control”, In: *Switching and Learning in Feedback Systems*, Eds. R. Murray-Smith and R. Shorten, **Lecture Notes in Computer Science**, vol.3355, ISBN: 978-3-540-24457-8, Springer-Verlag, Berlin/Heidelberg, Germany, pp.47-97, 2005 (глава от книга, която има монографичен характер).
- B1.2. T. A. Johansen, **A. Grancharova**, ”Approximate explicit constrained linear model predictive control via orthogonal search tree”, **IEEE Transactions on Automatic Control**, vol.48, No.5, pp.810-815, 2003.
(Impact factor: **1.896**)

- B1.3. **A. Grancharova**, T. A. Johansen, J. Kocijan, "Explicit model predictive control of gas-liquid separation plant via orthogonal search tree partitioning", *Computers and Chemical Engineering*, vol.28, No.12, pp.2481-2491, 2004.
(Impact factor: **1.678**)
- B1.4. **A. Grancharova**, T. A. Johansen, "Explicit approaches to constrained model predictive control: A survey", *Modeling, Identification & Control*, vol.25, No.3, pp.131-157, 2004.
(Impact factor: **0.080**)
- B1.5. T. A. Johansen, **A. Grancharova**, "Approximate explicit model predictive control implemented via orthogonal search tree partitioning", *Proceedings of 15-th IFAC World Congress*, Barcelona, Spain, 21-26 July, 2002, session Predictive Control (T-We-M17).
- B1.6. **A. Grancharova**, T. A. Johansen, "Approximate explicit model predictive control incorporating heuristics", *Proceedings of IEEE International Symposium on Computer Aided Control System Design*, Glasgow, Scotland, U.K., 18-20 September, 2002, pp.92-97.
- B1.7. **A. Grancharova**, T. A. Johansen, J. Kocijan, "Explicit model predictive control of gas-liquid separation plant", *Proceedings of European Control Conference*, Cambridge, U.K., 1-4 September, 2003, session MPC Applications.
- B1.8. **A. Grancharova**, T. A. Johansen, "Design of robust explicit model predictive controller using orthogonal search tree partitioning", *Proceedings of European Control Conference*, Cambridge, U.K., 1-4 September, 2003, session Robust MPC.
- B1.9. **A. Grancharova**, T. A. Johansen, "Reduced dimension approach to approximate explicit model predictive control", *Proceedings of IFAC Conference on Control System Design*, Bratislava, 7-10 September, 2003, Invited Session G – Advances in Model Predictive Control.
- B1.10. **A. Grancharova**, T. A. Johansen, J. Kocijan, D. Vrancic, "Design of reduced dimension explicit model predictive controller for a gas-liquid separation plant", *Proceedings of IEEE Region 8 EUROCON 2003: Computer as a tool*, Ljubljana, Slovenia, 22-24 September, 2003, vol.A, pp.391-395.
- B1.11. **A. Grancharova**, T. A. Johansen and P. Tøndel, "Input-to-state stability of constrained approximate explicit model predictive control with uncertainty", *Proceedings of the 1-st IFAC Workshop on Nonlinear Model Predictive Control for Fast Systems*, Grenoble, France, 9-11 October, 2006, pp.159-164.

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

- C1. **A. Grancharova**, J. Zaprianov, "Control system synthesis as a multiple criteria decision making problem", In: *Computers and Computational Engineering in Control*, Ed. N. Mastorakis, WSES Press, pp.107-113, 1999 (глава от книга, която има монографичен характер).
- C2. **A. Grancharova**, N. Abdulazim, H. Pu, J. Zaprianov, H. A. Nour Eldin, "Application of the "l.i.p" gymnastic method to parameter identification of planar revolute D||D robot type in the presence of torque measurement noise", 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.262-268, 1999 (глава от книга, която има монографичен характер).
- C3. **A. Grancharova**, H. J. Nern, H. A. Nour Eldin, T. Suuronen, H. Airaksinen, "Decision strategies for rating objects in knowledge-shared research networks", In: *Signal Processing, Communications and Computer Science*, Ed. N. Mastorakis, WSES Press, pp.260-265, 2000 (глава от книга, която има монографичен характер).
- C4. **A. Grancharova**, T. A. Johansen, P. Tøndel, "Computational aspects of approximate explicit nonlinear model predictive control", In: R. Findeisen, F. Allgöwer and L. Biegler, editors, *Assessment and Future Directions of Nonlinear Model Predictive Control, Lecture Notes in Control and Information Sciences*, vol.358, ISBN: 978-3-540-72698-2, Springer-Verlag, Berlin/Heidelberg, Germany, pp.181-192, 2007 (глава от книга, която има монографичен характер).
- C5. **A. Grancharova**, S. Stoyanov, "Pontryagin's maximum principle under conditions of uncertainty", *Automatica and Informatics*, (In Bulgarian), No.11/12, pp.2-3, 1991.
- C6. **A. Grancharova**, J. Zaprianov, "An intelligent neural network controller", *Complex Control Systems*, vol.10, pp.12-19, 1996.
- C7. **A. Grancharova**, J. Zaprianov, "Switching neural controller for robust control of uncertain systems: Application to a chemical reactor", *Journal on Systems, Analysis, Modelling, Simulation (Special Issue on Analysis and Control of Technological Systems)*, vol.38, pp.383-399, 2000.
- C8. С. Костова, **А. Грънчарова**, Д. Бояджиев, И. Грънчаров, А. Лекова, "Количествена оценка на въздействието на емисиите от производството на азотни торове върху здравето на хората и околната среда", *Екологично инженерство и опазване на околната среда*, No.1, 2005, pp.10-18.
- C9. **A. Grancharova**, J. Kocijan, T. A. Johansen, "Explicit stochastic predictive control of combustion plants based on Gaussian process models", *Automatica*, vol.44, No.6, pp.1621-1631, 2008.
(Impact factor: **3.178**)

- C10. J. Kocijan, **A. Grancharova**, “Gaussian Process modelling case study with multiple outputs”, *Proceedings of BAS*, ISSN: 1310-1331, vol.63, No.4, pp.601-608, 2010.
(Impact factor: **0.219**)
- C11. D. Petelin, J. Kocijan, **A. Grancharova**, “On-line Gaussian Process model for the prediction of the ozone concentration in the air”, *Proceedings of BAS*, ISSN: 1310-1331, vol.64, No.1, pp.117-124, 2011.
(Impact factor: **0.210**)
- C12. **A. Grancharova**, L. Kostov, “Model predictive control of a pH maintaining system”, *Information Technologies and Control*, ISSN: 1312-2622, 2013, No.1, pp.14-20.
- C13. S. Stoyanov, **A. Grancharova**, R. Gani, “Method for optimal control under uncertainty“, *Proceedings of 7-th International Symposium on System-Modelling-Control*, Zakopane, Poland, 17-21 May, 1993, vol.2, pp.181-185.
- C14. J. Zaprianov, **A. Grancharova**, “Time-optimal control via artificial neural networks“, *Proceedings of National Conference on Automatica and Informatics'95*, Sofia, Bulgaria, 7-9 November, 1995, pp.228-231.
- C15. **A. Grancharova**, S. Vassileva, J. Zaprianov, “Dynamic modelling of bioprocesses with artificial neural networks“, *Proceedings of International Conference on Computer Science*, Ostrava, Czech Republic, 5-7 September, 1995, pp.402-408.
- C16. **A. Grancharova**, J. Zaprianov, “An approach for synthesis of robust neural network controller for multivariable non-linear systems with stochastic parameters“, *Proceedings of 8-th IFAC Symposium on Large Scale Systems: Theory and Applications*, Rio Patras, Greece, 15-17 July, 1998, pp.1044-1048.
- C17. N. Abdulazim, H. Pu, H. A. Nour Eldin, **A. Grancharova**, J. Zaprianov, “The “l.i.p” gymnastic method for link parameter identification for DLD robot type (Manutec R2)”, *Proceedings of 32-nd International Conference on Modelling and Simulation of Systems (MOSIS)*, Sv. Hostyn, Czech Republic, 5-7 May, 1998, vol.3, pp.247-254.
- C18. **A. Grancharova**, H. J. Nern, H. A. Nour Eldin, “An intelligent CORBA-based software system for management of distributed computer applications”, *Proceedings of 16-th IMACS World Congress on Scientific Computation, Applied Mathematics and Simulation*, Lausanne, Switzerland, 21-25 August, 2000.
- C19. **A. Grancharova**, H. J. Nern, H. A. Nour Eldin, T. Suuronen, H. Airaksinen, “Decision support unit as part of global knowledge-shared research network”, *Proceedings of Euromedia'2000 Conference*, Antwerp, Belgium, 8-10 May, 2000, pp.240-244.
- C20. **A. Grancharova**, “Two approaches to optimal control of chemical processes in the presence of parameter uncertainty”, *Proceedings of 4-th International Scientific-Technical Conference Process Control 2000*, Kouty nad Desnou, Czech Republic, 11-14 June, 2000.
- C21. **A. Grancharova**, S. Vassileva, “Neural model-based optimization of brewing yeast production process”, *Proceedings of 4-th International Scientific-Technical*

Conference Process Control 2000, Kouty nad Desnou, Czech Republic, 11-14 June, 2000.

- C22. A. Lekova, D. Boiadjev, S. Kostova, **A. Grancharova**, "Life cycle assessment of environmental damages caused by nitrate fertilizers production in Bulgaria", *Proceedings of IFAC Workshop on Automatic Systems for Building the Infrastructure in Developing Countries*, Bansko, Bulgaria, 3-5 October, 2004, pp.325-330.
- C23. **A. Grancharova**, T. A. Johansen, "Explicit min-max model predictive control of constrained nonlinear systems with model uncertainty", *Proceedings of the 16-th IFAC World Congress*, Prague, Czech Republic, 4-8 July, 2005, Session Nonlinear Model Predictive Control (Th-M03-TO).
- C24. **A. Grancharova**, D. Boiadjev, A. Lekova and S. Kostova, "Quantitative evaluation of alternatives for municipal solid waste treatment in Bulgaria", *Proceedings of the IFAC Workshop on Energy Saving Control in Plants and Buildings*, Bansko, Bulgaria, 2-5 October, 2006, pp.189-193.
- C25. **A. Grancharova**, T. A. Johansen, "Explicit approximate approach to feedback min-max model predictive control of constrained nonlinear systems", *Proceedings of the 45-th IEEE Conference on Decision and Control*, San Diego, USA, 13-15 December, 2006, pp.4848-4853.
- C26. J. Kocijan, K. Azman, **A. Grancharova**, "The concept for Gaussian process model based system identification toolbox", *Proceedings of the International Conference on Computer Systems and Technologies - CompSysTech'07*, Rousse, Bulgaria, 14-15 June, 2007, pp.IIIA.23-1-III A.23-6.
- C27. **A. Grancharova**, J. Kocijan, T. A. Johansen, "Explicit approximate nonlinear predictive control based on neural network models", *Proceedings of the International Conference on Automatics and Informatics*, Sofia, Bulgaria, 3-6 October, 2007, vol. II, pp.1-5-I-8.
- C28. **A. Grancharova**, T. A. Johansen, "Explicit approximate model predictive control of constrained nonlinear systems with quantized input", *Proceedings of the International Workshop on Assessment and Future Directions of Nonlinear Model Predictive Control*, Pavia, Italy, 5-9 September, 2008.
- C29. **A. Grancharova**, T. A. Johansen, "Explicit solution of regulation control problems for nonlinear systems with quantized inputs", *Proceedings of the International Conference on Automatics and Informatics*, Sofia, Bulgaria, 1-4 October, 2008, pp. I-15-I-18.
- C30. D. Nedialkov, **A. Grancharova**, H. Hristova, A. Krastev, "Linear regression models for prediction of ozone concentration in the air of Bourgas", *Proceedings of International Conference on Automatics and Informatics*, Sofia, Bulgaria, October, 2009, pp.IV-21-IV-24.
- C31. **A. Grancharova**, J. Kocijan, T. A. Johansen, "Dual-mode explicit output-feedback predictive control based on neural network models", *Proceedings of the 8-th IFAC*

Symposium on Nonlinear Control Systems (NOLCOS'2010), Bologna, Italy, 1-3 September, 2010, pp.545-550.

- C32. **A. Grancharova**, J. Kocijan, A. Krastev, H. Hristova, "High-order Gaussian process models for prediction of ozone concentration in the air", *Proceedings of 7-th EUROSIM 2010 Congress on Modelling and Simulation*, Prague, Czech Republic, 5-9 September, 2010.
- C33. **A. Grancharova**, T. A. Johansen, "Explicit nonlinear model predictive control based on orthogonal partition: A review", *Proceedings of the Anniversary Scientific Conference "40 years Department of Industrial Automation"*, University of Chemical Technology and Metallurgy, Sofia, 18 March, 2011, pp.23-26.
- C34. **A. Grancharova**, J. Kocijan, "Explicit stochastic model predictive control of gas-liquid separator based on Gaussian process model", *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1850, Sofia, Bulgaria, 3-7 October, 2011, pp.B-85-B-88.
- C35. **A. Grancharova**, E. I. Grøtli, T. A. Johansen, "Distributed MPC-based path planning for UAVs under radio communication path loss constraints", *Proceedings of the 1-st IFAC Conference on Embedded Systems, Computational Intelligence and Telematics in Control (CESCIT 2012)*, Würzburg, Germany, 3-5 April, 2012, pp.254-259.
- C36. **A. Grancharova**, "A semi-explicit approach to efficient distributed model predictive control for interconnected systems", *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1869, Sofia, Bulgaria, 3-5 October, 2012, pp.62-65.
- C37. **A. Grancharova**, S. Olaru, "Distributed model predictive control of a quadruple-tank system", *Proceedings of the International Conference on Automatics and Informatics*, ISSN: 1313-1869, Sofia, Bulgaria, 3-7 October, 2013, pp. I-293-I-296.
- C38. **А. Грънчарова**, Л. Костов, "Моделно предсказващо управление на система за поддържане на рН", *Сборник с доклади на 21-вия Международен Симпозиум по Управление на енергийни, индустриални и екологични системи*, ISSN: 1313-2237, Баня, 7-8 ноември 2013, стр.23-26.
- C39. M. T. Nguyen, C. Stoica Maniu, S. Olaru, **A. Grancharova**, "About formation reconfiguration for multi-agent dynamical systems", *Proceedings of the International Conference on Automatics and Informatics*, Sofia, Bulgaria, 1-3 October, 2014, pp.I-141-I-144.
- C40. **A. Grancharova**, S. Olaru, G. Sandou, C. Stoica, P. Rodriguez, "Distributed model predictive control of a hydro-power valley by dual decomposition", *Proceedings of the International Conference on Automatics and Informatics*, Sofia, Bulgaria, 1-3 October, 2014, pp.I-149-I-152.

Таблица 1. Брой на научните трудове по видове.

ВИД НА НАУЧНИЯ ТРУД	НА АНГЛИЙСКИ ЕЗИК	НА БЪЛГАРСКИ ЕЗИК	ОБЩО
Глави от книги	5		5
Статии в списания с импакт фактор	6		6 (сумарен импакт фактор: 7,261)
Статии в списания без импакт фактор	3	2	5
Доклади на международни конференции в чужбина в пълен текст	21		21
Доклади на международни конференции в България в пълен текст	3		3
Доклади на конференции в България с международно участие в пълен текст	9		9
Доклади на национални конференции в пълен текст	1	1	2
Общо научни трудове в пълен текст	48	3	51
Общо			51