

## CURRICULUM VITAE

**Stanislav Boldyryev**

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**Current Location:** Zagreb, Croatia.



### CURRENT POSITION

*Oct 2014 – Present:* Project Manager, NEWFELPRO Fellow at Department of Energy, Power Engineering and Environment, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb

### EDUCATION

*Oct 2004 – Sep 2007:* **Department of Integrated Processes and Chemical Engineering, National Technical University “Kharkiv Polytechnic Institute”**, Kharkiv, Ukraine, specialty – Chemical Engineering;

*PhD Degree:* National Technical University “Kharkiv Polytechnic Institute”, Kharkiv, Ukraine,

*PhD Thesis:* “Process integration and high effective HENs in chemical processes”, Defended successfully with an excellent mark. Supervised by Professor Leonid Tovazhnyanskyy.

*Sep 1997 – Feb 1999:* **Kharkiv State Polytechnic University, Kharkiv, Ukraine** (now National Technical University “Kharkiv Polytechnic Institute”), specialty – Process engineering of fats and oils;

*MSc Degree:* Kharkiv State Polytechnic University, Kharkiv, Ukraine;

*MSc Thesis:* “Synthesis of surface active agents based on soy oil and different amines”, Defended successfully with an excellent mark. Supervised by Professor Anatoliy Melnik.

*Sep 1993 – June 1997:* **Kharkiv State Polytechnic University, Kharkiv, Ukraine** (now National Technical University “Kharkiv Polytechnic Institute”), specialty – Food Processing;

*BSc Degree:* Kharkiv State Polytechnic University, Kharkiv, Ukraine;

*BSc Thesis:* “Crude glycerin production”, Defended successfully with an excellent mark. Supervised by Professor Leonid Perevalov.

### ADVANCED TRAININGS/COURSES

*Apr 2002:* Process Integration Trainings, Centre for Process Integration of University of Manchester Institute of Science and Technology, Manchester, UK

*Oct 2003:* School – Process integration with use of high effective heat exchanger equipment, National Technical University “Kharkiv Polytechnic Institute”, Kharkiv, Ukraine.

*June 2010:* Summer School - Process Integration and Intensification, Process Optimisation and Regional Sustainability, Faculty of Information Technology, University of Pannonia, Veszprem, Hungary.

### LANGUAGE SKILLS

English – fluent, Russian – fluent, Ukrainian – native, Croatia – elementary proficiency.

### CITIZENSHIP, TRAVEL TIME TO WORK

Citizenship: Ukraine

Work permit: Ukraine, Croatia

Travel time: Any

Ready to relocate

Ready for business trips

## EXPERIENCE

<b>October 2014 - present</b>	
<b>Employer:</b>	Department of Energy, Power Engineering and Environment, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb
<b>Industry:</b>	High education, research
<b>Position(s):</b>	Project Manager, NEWFELPRO Fellow
<b>Functions:</b>	Total Site methodology, industrial case studies, project management

<b>September 2013 – October 2014</b>	
<b>Employer:</b>	Public Joint Stock Company “Brom”, Krasnoperekopsk, Ukraine ( <a href="http://www.perkopbromine.com">www.perkopbromine.com</a> )
<b>Industry:</b>	Chemical industry.
<b>Position(s):</b>	Deputy General Director on Development
<b>Functions:</b>	Management of energy efficiency and development projects, innovative and energy strategy, coordination of scientific collaboration, technical expertise, budgeting, reporting, public relations

<b>June 2012 – October 2012</b>	
<b>Employer:</b>	Center for Process Integration and Intensification, Faculty of Information Technology, University of Pannonia, Veszprem, Hungary
<b>Industry:</b>	High education, research
<b>Position(s):</b>	Guest researcher
<b>Functions:</b>	Total Site methodology development, process modeling, paper reviewing, writing the papers, conference presentations, preparation of PRES 2012 conference, reporting

<b>February 2007 — August 2013</b>	
<b>Employer:</b>	Centre for energy saving process integration of National Technical University "Kharkiv Polytechnic Institute" Kharkiv, Ukraine ( <a href="http://www.kpi.kharkov.ua">www.kpi.kharkov.ua</a> )
<b>Industry:</b>	High education, research
<b>Position(s):</b>	Associate Professor (2009-2013) Lecturer (2008-2009) Assistant Professor (2007-2008)
<b>Functions:</b>	Lecture, laboratory and practical training, curriculum development, supervisor of bachelor and master diplomas, development of energy saving methods for chemical engineering, pinch design, process modeling, Consulting, Reviewer, Legal Entity Appointed Representative (LEAR) of National Technical University “Kharkiv Polytechnic Institute” in FP7 program.

<b>February 1999 — August 2013</b>	
<b>Employer:</b>	AO Sodrugestvo-T Company, Kharkiv, Ukraine ( <a href="http://www.sodr-t.kharkiv.com/">www.sodr-t.kharkiv.com/</a> )
<b>Industry:</b>	Engineering, manufacturing, consulting
<b>Position(s):</b>	Project manager/ Leader Researcher (2007-2013) Leader Researcher (2004-2007) Researcher/ Software Developer (2001-2004) Engineer (1999-2000)
<b>Functions:</b>	Energy audit of industrial site, pinch analysis, data extraction and data analysis, design and optimization of heat exchangers networks, heat exchangers calculation, software development, project management, reporting, scheduling.

## MAIN CONTRIBUTION

### *Industrial projects*

Oct 1999 – Dec 2000	Ukraine, Zaporozhie Coke–Chemical Plant - Expertise, process integration.
Jan 2001 – Dec 2001	Russia, Taranovka, Dmitro-Taranovskii Sugar Plant - Expertise, pinch analysis, heat recovery improvement.
Dec 2001 – Dec 2002	Ukraine, Avdeevka, Coke-Chemical Plant - Expertise, pinch analysis and HEN retrofit of coal tar distillation plant, benzene hydrocarbons distillation plant.
Jul 2002 – Jun 2003	Ukraine, Mariupol Coke–Chemical Plant - Expertise, process integration.
Feb 2004 – Nov 2004	Ukraine, Kherson Refinery OAO “Khersonneftepererabotka”, Crude distillation, Reforming, Utility - Expertise, energy audit, heat integration, HEN optimisation.
Aug 2006 – Nov 2006	Ukraine, Lisichansk Refinery "LINIK". Crude distillation unit - Expertise, energy audit, pinch analysis.
Feb 2007 – May 2007	Ukraine, Kharkiv Fats and Oils Factory - Expertise, energy audit, process integration, calculation of plate heat exchangers.
Aug 2007 – Dec 2007:	Ukraine, Sumy Chemical plant “SumyKhimprom” - Expertise, energy audit, process integration of titanium dioxide production.
Aug 2008 – Dec 2008	Russia, Chaykovskiy “UralOrgSynthesis”, Gas Fractioning Unit - Expertise, energy audit, pinch analysis
Feb 2011 – Sep 2011	Ukraine, Zaporozhie Titanium Magnesium Plant – Expertise, pinch analysis, heat pumps application.
Dec 2011 – Mar 2012	Ukraine, Lisichansk Refinery "LINIK" - Crude distillation unit, Bitumen unit. Expertise, energy audit, heat integration, plate heat exchangers calculation.
Feb 2012 – Jun 2012	Russia, Saratov Refinery, Crude distillation - Expertise, energy audit, pinch analysis
Jun 2012 – Dec 2012	Russia, Carbamide Production – Expertise, process integration, plate heat exchangers calculation.
Feb 2013 – Oct 2013	Russia, Nizhniy Novgorod Refinery, Ethylene oxide and Benzene Plants – Expertise, energy audit, process integration

### *Research projects*

Nov 1999 – Nov 2000	EC project SYNERGY (contract No 4.1041 /D/99-028) “Analysis of the possibilities of energy saving and application of non-traditional sources of energy, with prognostication of a corresponding reduction in greenhouse gas emissions” Optimisation of heat exchangers networks, pinch analysis, estimation of energy saving potential.
Sep 2001 – Sep 2004	EC Project DEMACSYS (contract No ICA-CT-2001-10005) “Development and application of decision-making computerized system for environmental impact assessment and pollution reduction management in chemical industrial areas” Expertise, energy audit, heat integration, total site integration.
Oct 2004 – Jan 2008	EC project SHERHPA (project No COLL-CT-500229) – Sustainable heat and energy research for heat pump application, collective research. Heat integration of ammonia cooling cycle of food processing factories, expertise of ammonia cooling heat pumps, heat exchangers calculation. Project management.
Jan 2006 – Dec 2008:	EC project ECOPHOS (No INCO-CT-2005-013359) – Waste utilization in the phosphoric acid industry through the development of ecologically sustainable and environmentally friendly processes for a wide class of phosphorous containing products. Expertise, energy audit, heat integration of phosphoric acid production, PFI Company, Greece. HEN optimization for sodium hypophosphite production, , project management
Dec 2010 – Dec 2012	EC Project "INTHEAT" (Grant Agreement 262205) – Intensified heat transfer technologies for enhanced heat recovery.

	Data extraction, heat integration, plate heat exchangers calculation, project management
Feb 2012 – Aug 2013	EC Project FP7 project “DISKNET” Grant Agreement No: PIRSES-GA-2011-294933) – Distributed Knowledge-Based Energy Saving Networks Energy efficiency, Total Site Integration, HEN optimization, Project management
From Aug 2012 – Aug 2013	EC Project “EFENIS” (Grant Agreement No. ENER/FP7/296003/EFENIS) – Efficient Energy Integrated Solutions for Manufacturing Industries. Energy efficiency for refinery and coal to chemicals, Total Site Integration, Heat Recovery, project management.

## ***Publications (76 papers, 37 conference presentations)***

### ***Key papers***

- Tovazhnyansky L., Kapustenko P., Ulyev L., Boldyryev S., Tarnovsky M. Energy integration of the early crude oil units with take into account different regimes. Chemical Engineering Transactions. 7 (2005), 103 – 108.
- Petro O. Kapustenko, Leonid M. Ulyev, Stanislav A. Boldyryev, Andrey O. Garev. Integration of heat pump into the heat supply system of cheese production plant. Energy. 2008, Vol. 33. No 8. p. 882-889.
- P. Kapustenko, S. Boldyryev, O. Arsenyeva, G. Khavin. The use of plate heat exchangers to improve energy efficiency in phosphoric acid production. Journal of Cleaner Production. 2009, No 17. p. 951–958.
- L. Tovazhnyansky, P. Kapustenko, L. Ulyev, S. Boldyryev, O. Arsenyeva. Process integration of sodium hypophosphite production. Applied Thermal Engineering 30 (2010) 2306-2314.
- Tovazhnyansky L., Kapustenko P, Ulyev L., Boldyryev S. Heat Integration Improvement for Benzene Hydrocarbons Extraction from Coke-Oven Gas. Chemical Engineering Transaction, 25 (2011), 153-158.
- S. Boldyryev, P. S. Varbanov, A. Nemet, J. J. Klemeš, P. Kapustenko. Capital Cost Assessment for Total Site Power Cogeneration. Computer Aided Chemical Engineering, Volume 32, 2013, p. 361-366.
- E. Nagy, S. Boldyryev. Energy demand of biofuel production applying distillation and/or pervaporation. Chemical Engineering Transaction, 2013. 35, 265-270.
- Leonid. M. Ulyev, P. A. Kapustenko, M. A. Vasilyev, S. A. Boldyryev. Total Site Integration for Coke Oven Plant. Chemical Engineering Transaction, 2013. 35, 235-240.
- S. Boldyryev, P. S. Varbanov, A. Nemet, J. J. Klemeš, P. Kapustenko. Minimum heat transfer area for Total Site heat recovery. Energy Conversion and Management. Volume 87, November 2014, 1093–1097
- S. Boldyryev, P. S. Varbanov. Process Integration for Bromine Plant. Chemical Engineering Transaction, 2014. 39, 1423-1428.

### ***Key presentations***

- Tovazhnyansky L., Kapustenko P., Ulyev L., Boldyryev S., Tarnovsky M. Energy integration of the early crude oil units with take into account different regimes. 8th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Giardini di Naxos, Italy, 2005.
- Tovazhnyanskyy L., Kapustenko P., Ulyev L., Boldyrev S., Garev A. Heat Integration of ammonia cooling unit into the purification process of fats and oils. Presented at ESCAPE17: 17th European Symposium on Computer Aided Process Engineering: Bucharest, Romania, 2007.
- L. Tovazhnyansky, P. Kapustenko, L. Ulyev, S. Boldyryev, M. Vasilyev. Process integration of benzene distillation unit at the coke plant. Presented at CHISA 2006: 19th International Congress of Chemical and Process Engineering, Prague, Czech Republic, 2010.
- Garev, S. Boldyryev, O. Arsenyeva, L. Tovazhnyanskyy, P. Kapustenko. Integration of Ammonia Cooling Cycle in Buildings Heating System with Computer Modeling. Presented at CAPE-2012: Computer Aided Process Engineering Forum. Veszprem, Hungary, 2012.

- L. Tovazhnyansky, P. Kapustenko, L. Ulyev, L. Melnykovskaya, S. Boldyryev. Refinement of the payload tube furnace by taking into account the heat losses in heat exchange equipment and piping installation of primary oil refining unit. Proceedings of 20th International Congress of Chemical and Process Engineering – CHISA. 25 – 29 August, 2012. Prague. Czech Republic. p. 309.
- S. Boldyryev, A. Garev, A. Yuzbashyan, O. Arsenyeva. Preventing fouling in PHEs for crude oil distillation unit. Presented at CAPE Forum 2013 – Computer Aided Process Engineering. 7-10 April 2013. Graz University of Technology, Graz, Austria. p. 6.
- P. S. Varbanov, S. Boldyryev, A. Nemet, J. J. Klemeš, P. Kapustenko. Targeting of the Trade-Off of Capital Cost and Carbon Footprint for CHP. 6<sup>th</sup> International Conference on Process Systems Engineering (PSE ASIA) 25 - 27 June 2013, Kuala Lumpur.

### ***Academic activities***

- 4 curricula prepared
- 4 teaching guidebook
- 15 BSc students and 10 MSc students were supervised

### **SKILLS**

#### ***Energy efficiency:***

Pinch analysis, Heat Recovery, Process Simulation, Design and Optimization of Heat Exchangers Networks, Total Site Integration, Energy Audit, Calculation of Heat Exchangers

#### ***Process Simulation:***

Aspen HYSYS®, UniSim Design®.

#### ***Project Management:***

7 years experience.

#### ***IT skills:***

Operating Systems: Proficiency under MS-Windows (all versions).

Programming: Fortran – 10 years experience; Borland Delphi – 3 years experience; Visual Basic – basic; php – basic 3 years experience.

Office Software: Microsoft Office (Word, Excel, PowerPoint, Visio, Outlook), Corel Draw Suite.

Heat exchanger networks modelling in: SPRINT®, – general knowledge; Process Integration Limited Software, UniSim ExchangerNet®, Aspen HX-Net®– advanced knowledge.

Utility system optimisation STAR® – general knowledge.

Process Modelling in: Aspen HYSYS®, UniSim Design – advanced knowledge;

SuperProDesigner – general knowledge.

GAMS® (General Algebraic Modelling System), – general knowledge

Mathcad® – advanced knowledge

Pinch2.02 (Pinch analysis Software) – expert (software development and testing.)

#### ***Other:***

Reviewer of international scientific journals: Energy Conversion and Management, Chemical Engineering Transactions, Energy, Water Science and Technology.

Co-chairman of 15th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Aug 2012, Prague, Czech Republic.

***Personal Interests and Hobbies:*** My personal interests are history of science, Russian literature, jazz and rock music, travels and sport (wrestling, football, cycling).

## REFERENCES

### **Professor Petro Kapustenko.**

President of AO SODRUGESTVO-T Engineering Company.  
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