Prof. Ing. Tomáš Jirout, Ph.D.

Personal data

- Date and place of birth: 30. 11. 1975, Hradec Králové
- Address: Sazovická 454/15, 155 21 Praha – Zličín
- Phone number: 2 2435 2681, 770 125 378

Education

2014	Czech Technical University in Prague, Faculty of Mechanical Engineering. ***Professor (Prof.)*** – *Design and Process Engineering*
2008	Czech Technical University in Prague, Faculty of Mechanical Engineering. ***Habilitation (Doc. – Assoc. prof.) –*** Topic of habilitation: *Design and Process Engineering*, Habilitation thesis: *Design of equipment for mixing of suspensions*
2000 – 2005	Czech Technical University in Prague, Faculty of Mechanical Engineering, Department of Process Engineering. ***Ph.D. study (Ph.D.) –*** Specialty: *Process Engineering*, Dissertation thesis: *Mixing of suspensions* (awarded rector of CTU in Prague)
1994 – 2000	Czech Technical University in Prague, Faculty of Mechanical Engineering. ***Master study (Ing. – M.Sc.) –*** Specialty: *Process Engineering*, Diploma thesis: *Equipment for mixing of suspensions*
1990 – 1994	Secondary technical school, Hradecká 647, Hradec Králové 2, Czech Republic. Specialization: *Mechanical engineering*

Employment, work experiences

since 2018	***Vice-Dean for Academic and Research Affairs*** – Czech Technical University in Prague, Faculty of Mechanical Engineering
since 2014	***Professor*** – Czech Technical University in Prague, Faculty of Mechanical Engineering, Department of Process Engineering
since 2009	***Head of department*** – Czech Technical University in Prague, Faculty of Mechanical Engineering, Department of Process Engineering
2017 – 2018	***Project specialist*** – University of Chemistry and Technology, Prague, Czech Republic (12 month)
2017	***Process technology designer*** – Unipetrol - Centre for Research and Education (UniCRE) Litvínov, Czech Republic (8 month)
2008 – 2014	***Associate professor*** – Czech Technical University in Prague, Faculty of Mechanical Engineering, Department of Process Engineering
2008 – 2009	***Guest professor*** – Université de La Rochelle, La Rochelle, Francie (12 months); specialty: Electrochemical measurement of Couette-Taylor flow, Experimental study of expansion process of biomaterials to vakuum. Teaching: Desin industriel, Technologie chimique
2002 – 2008	***Assistant professor*** – Czech Technical University in Prague, Faculty of Mechanical Engineering, Department of Process Engineering, Technická 4, 166 07 Prague 6, Czech Republic
2001	***Fellowship*** – Anhalt University of Applied Sciences / Hochschule Anhalt (FH), Köthen, SRN (3 months); specialty: Mixing and mixing equipment – supervisor of 2 diploma theses, Measurement of flow in agitated batch by LDA technique
2000 – 2003	***Postgraduate full-time student*** – Czech Technical University in Prague, Faculty of Mechanical Engineering, Department of Process Engineering
1998	***Designer*** – ZVU POTEZ a.s. (design department of brewery), Hradec Králové, Czech Republic

Research and professional interests:

- Mixing and mixing equipment
- Momentum, heat and mass transfer
- Engineering rheology
- Scale-up of processes and equipment
- Technology and equipment for biotechnology and biorefinery
- Design of equipment for chemical, food, pharmaceutical and related industry

Publications and research activities

- Author or co-author of more than **400** professional printouts – articles in journals with impact factor (**41**), articles in review journals (**45**), professional book (**1**), chapter in book (**1**), contributions in proceedings from international (more than **150**) and national conferences (more than **50**), patents (**6**), design of equipment, industrial applications and industrial realizations (more than **80**), research and technical reports, university textbooks.

- **56** articles and **258** their citations (without self-citation) in **WoS** (28. 10. 2020)
- **71** articles and **305** their citations (without self-citation) in **SCOPUS** (28. 10. 2020)
- Leader or collaborator of more than **20** external research grants and projects
- Supervisor of **10** Ph.D. students (**1** Ph.D. thesis defend successfully, **5** before the defense)
- ***H-index = 8 (WoS), 9 (SCOPUS)*** (28. 10. 2020)

The most significant solve projects – *choice from 5 last year*

- CZ.02.1.01/0.0/0.0/16_019/0000753 – Research center for low-carbon energy technologies (OP RDE Excellent research) 2018 – 2022, leader of WPs on Department of Process Engineering of FME CTU in Prague
- TH04020226 – Design of mixer optimized for water purification and water treatment processes (TAČR Epsilon) 2019 – 2020, co-worker on CTU in Prague
- FV30284 – Development of new homogenization technology high viscous dispersion of the non-Newton type (MPO Trio) 2018 – 2020, leader on CTU in Prague
- FV10790 – Biofilter with dielectric heating. Ministry of Industry and Trade of the Czech Republic (MPO Trio) 2016 – 2019, leader on CTU in Prague
- TH01020879 – Treatment of concentrated waste suspensions from energetic equipment. Technology Agency of the Czech Republic (TAČR Epsilon) 2015 – 2017, leader on CTU in Prague
- 14-18955S – Experimental and theoretical study of the convective heat transfer in turbulent swirling impinging jet. Czech Science Foundation (GAČR), 2014 – 2016, leader

Academic activities, memberships in professional societies,

- Czech Society of Chemical Engineering ČSCHI (since 2014 – member of main committee, since 2003 – member of society)
- Representative of ČSCHI in Working Party on Mixing of the European Federation of Chemical Engineering (member since 2015, guest member 2012 – 2015)
- Working party „Mixing“, Czech Society of Chemical Engineering ČSCHI – scientific secretary (since 2008)
- Member of „technical commission of CEN“ Czech Office for Standards, Metrology and Testing via manufacturer CHEVESS ENGINEERING in the construction of pressure equipment (since2015)
- Scientific Council of Czech Technical University in Prague (since 2018); Scientific Council of Faculty of Mechanical Engineering, Czech Technical University in Prague (since 2010); Scientific Council of Faculty of Mechanical engineering, Jan Evangelista Purkyně University in Ústí nad Labem (2015 – 2019)
- Council of Ph.D. study: Czech Technical University in Prague, Faculty of Mechanical Engineering (since 2014), University of Chemistry and Technology Prague and University of Pardubice (since 2010); Slovak University of Technology in Bratislava (since 2016)

Selected publications – *choice from 5 last year*

- JIROUT, T., RIEGER, F., CERES, D. Scale-Up of Mixing Equipment for Suspensions. PROCESSES. 2020, 8(8), 909.
- JIROUT, T., JIROUTOVA, D. Application of Theoretical and Experimental Findings for Optimization of Mixing Processes and Equipment. PROCESSES. 2020, 8(8), 955.
- AYAS, M., SKOCILAS, J., JIROUT, T. Analysis of Power Input of an In-Line Rotor-Stator Mixer for Viscoplastic Fluids. PROCESSES. 2020, 8(8), 916.
- KRÁTKÝ, L. a T. JIROUT. Modelling of particle size characteristics and specific energy demand for mechanical size reduction of wheat straw by knife mill. BIOSYSTEMS ENGINEERING. 2020, 197, 32-44.
- KUTSAY, A., L. KRÁTKÝ a T. JIROUT. Biogas Plant Upgrade to CO2-Free Technology: A Techno-Economic Case Study. CHEMICAL ENGINEERING AND TECHNOLOGY. 2020, 43.
- AYAS, M., J. SKOČILAS a T. JIROUT. A practical method for predicting the friction factor of power-law fluids in a rectangular duct. CHEMICAL ENGINEERING COMMUNICATIONS. 2019, 206(10), 1310-1316.
- KUTSAY, A., L. KRÁTKÝ a T. JIROUT. Diversity of Biogas Plant Realizations. Chemical Engineering and Technology. 2019, 42(2), 370-380.
- PETERA, K.; DOSTÁL, M.; VĚŘÍŠOVÁ, M.; JIROUT, T.: Heat Transfer at the Bottom of a Cylindrical Vessel Impinged by a Swirling Flow from an Impeller in a Draft Tube. Chemical and Biochemical Engineering Quarterly. 2017, 31(3).
- MIAZEK, K., KRÁTKÝ, L., ŠULC, R., JIROUT, T., AGUEDO, M., RICHEL, A. a GOFFIN, D. Effect of Organic Solvents on Microalgae Growth, Metabolism and Industrial Bioproduct Extraction: A Review. International Journal of Molecular Sciences. 2017, 18(7).

- VLČEK, P.; KYSELA, B.; JIROUT, T.; FOŘT, I.: Large eddy simulation of a pitched blade impeller mixed vessel - Comparison with LDA measurements. Chemical Engineering Research and Design. 2016, 108, 42-48.
- KUTSAY, A., L. KRÁTKÝ a T. JIROUT. Energy-economic analysis of thermal-expansionary pretreatment for its implementation at biogas plant. Chemical Engineering and Technology. 2016, 39(12), 2284-2292.