

Nidret Ibric

✉ nidret.ibric@ntnu.no

☎ +4793681630

📍 Kolbjørn Hejes vei 1A, 7034 Trondheim, Norway

🌐 <https://www.linkedin.com/in/nidret-ibric-6905252a/>

🔍 <https://scholar.google.com/citations?user=uuvYaiMAAAAJ&hl=en>

🔗 <https://www.researchgate.net/profile/Nidret-Ibric>

🆔 <https://orcid.org/0000-0003-2554-3282>



📁 Work Experience

- Sept 2022 – **Research Fellow.** Department of Energy and Process Engineering (EPT), Norwegian University of Science and Technology (NTNU).
- 2016 – Sept 2022 **Lecturer, Assistant Professor.** Department of Chemical Engineering, Faculty of Technology, University of Tuzla.
Courses: Mass and energy balances, Chemical process equipment design, Analysis and simulation of chemical processes, Food engineering calculations.
- 2007 – 2016 **Teaching Assistant.** Department of Chemical Engineering, Faculty of Technology, University of Tuzla.
Courses: Mass and energy balances, Chemical process equipment design, Analysis and simulation of chemical processes, Process integration, Chemical Process Design, Numerical methods for chemical engineers.
- June–October 2007 **Chemical Process Engineer.** Chemicals (soda ash) production. Sisecam Soda Lukavac (SSL), Prva ulica br.1, 75300 Lukavac (Bosnia and Herzegovina)

🎓 Education

- October 2015 – April 2016 **Postdoctoral research,** Faculty of Chemistry and Chemical Engineering, University of Maribor, Maribor (Slovenia).
- 2011 – 2014 **Ph.D. in Process Engineering,** Faculty of Technology, University of Tuzla.
Thesis title: *Synthesis and optimisation of process water networks.*
- February 2013 – May 2013 **CEEPUS mobility,** students exchange programme within CEEPUS network 'PhD in Chemistry and Chemical Engineering', Faculty of Chemistry and Chemical Engineering, University of Maribor, Maribor (Slovenia).
- 2008 – 2010 **M.Sc. Chemical engineering,** Faculty of Technology, University of Tuzla.
Thesis title: *Development of optimisation model for design of integrated water systems in process industries.*
- 2001 – 2006 **Graduated Engineer of Technology: Food Engineering,** Faculty of Technology, University of Tuzla.

🔧 Skills

- Languages **📌** Mother tongue (Bosnian). Strong reading, writing and speaking competencies for English.
- Software **📌** Good knowledge of Microsoft Office tools (Word, Excel, Power Point)
Good knowledge of graphics design tool Corel Draw
Good knowledge of commercial process simulation software ASPEN One, as well as open source simulator DWSIM.

✂ Skills (continued)

- Coding  Good knowledge in GAMS acquired through research; Interested in Python programming; Skilled in Excel VBA through research and teaching; Good knowledge in document typesetting with L^AT_EX acquired through research publication

Projects

- 2021–2022  **Optimization of water and energy consumption in industry**, Project supported by Federal ministry of education and science of Bosnia and Herzegovina.
- 2019–2022  **Synthesis of evaporation systems by using mathematical programming**, Bilateral project between Bosnia and Herzegovina (University of Tuzla) and Republic of Slovenia (University of Maribor).
- 2020  **Energy efficiency of chemical processes and reduction of greenhouse gasses into the environment**, Internal call for financing/co-financing projects in the field of science of importance for the Federation of Bosnia and Herzegovina in 2019 based on an agreement signed between the Federal Ministry of Education and Science and the University of Tuzla.
- 2018–2020  **Modeling and Simulation of Biorefinery Concepts in the Context of Water and Heat Integration (MoBi WaterHeat, No: BIH 06/2019)**, Project financed by Federal Ministry of Education, Science and Research of Austria; OeAD – Agency for Education and Internationalisation and Ministry of Civil Affairs and Federal ministry of Science and Education of Bosnia and Herzegovina.
- 2014–2017  **Computer Aided Process Engineering applied to energy, water, and waste reduction during process design and operation**, SCOPES: Joint Research Projects between: Industrial Process and Energy Systems Eng. IPESE-IGM-STI EPFL, University of Maribor, and University of Tuzla, 2014–2017.
- 2014–2015  **Synthesis of the sustainable water, wastewater treatment and energy networks in the process industries**, Bilateral project between Bosnia and Herzegovina (University of Tuzla) and Republic of Slovenia (University of Maribor), 2014–2015.
-  **Optimisation of kinetic parameters for composting of organic fraction of municipal solid waste with different additions**, Project supported by Federal ministry of education and science of Bosnia and Herzegovina.
- 2010–2011  **Development of optimisation model and its application on industrial water consumption reduction**, Joint research project between science and technology cooperation between Bosnia and Herzegovina (University of Tuzla) and Slovenia (University of Maribor).
-  **Automated synthesis and design of sustainable processes**, Project supported by Federal ministry of education and science of Bosnia and Herzegovina.
- 2010  **Efficient water and energy use in the process industry. Faculty of Technology University of Tuzla**, Project supported by Ministry of education, science, culture and sports of Tuzla Canton.
- 2009–2010  **Possibilities of municipal solid waste composting process in reactor system by using different additives**, Project supported by Federal ministry of education and science of Bosnia and Herzegovina.
- 2009  **Technological project of lime kiln at Sisecam Soda Lukavac factory**, Faculty of Technology, University of Tuzla.
- 2008  **Technological project of cooling towers at Sisecam Soda Lukavac factory**, Faculty of Technology, University of Tuzla.

Journal Articles

- 1 Ahmetovic, E., **Ibrić, N.**, Nemet, A., Kravanja, Z., & Grossmann, I. E. (2022). Recent progress and future directions in the synthesis of heat-integrated water networks. *Chemical Engineering Transactions*, 94, 625–630. [doi:10.3303/CET2294104](https://doi.org/10.3303/CET2294104)
- 2 Nemet, A., **Ibrić, N.**, Bogataj, M., Ahmetovic, E., & Kravanja, Z. (2022). Simultaneous synthesis of heat-integrated water network with the two-step approach. *Chemical Engineering Transactions*, 94, 1351–1356. [doi:10.3303/CET2294225](https://doi.org/10.3303/CET2294225)
- 3 **Ibrić, N.**, Ahmetović, E., Nemet, A., Kravanja, Z., & Grossmann, I. E. (2022). Synthesis of heat-integrated water networks using a modified heat exchanger network superstructure. *Energies*, 15(9). [doi:10.3390/en15093158](https://doi.org/10.3390/en15093158)
- 4 Ahmetović, E., Kravanja, Z., **Ibrić, N.**, Grossmann, I. E., & Savulescu, L. E. (2021). State of the art methods for combined water and energy systems optimisation in kraft pulp mills. *Optimization and Engineering*, 22(3), 1831–1852. [doi:https://doi.org/10.1007/s11081-021-09612-4](https://doi.org/10.1007/s11081-021-09612-4)
- 5 **Ibrić, N.**, Ahmetovic, E., Kravanja, Z., & Grossmann, I. E. (2021). Synthesis of heat-integrated water networks: Case study with sensitivity analysis. 88, 1147–1152. [doi:https://doi.org/10.3303/CET2188191](https://doi.org/10.3303/CET2188191)
- 6 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2021). Simultaneous optimisation of heat and power integration of evaporation–crystallisation systems: A case study of distiller waste from solvay process. *Optimization and Engineering*, 22(3), 1853–1895. [doi:https://doi.org/10.1007/s11081-021-09641-z](https://doi.org/10.1007/s11081-021-09641-z)
- 7 **Ibrić, N.**, Ahmetović, E., Kravanja, Z., & Grossmann, I. E. (2021). Simultaneous optimisation of large-scale problems of heat-integrated water networks. *Energy*, 235, 121354. [doi:https://doi.org/10.1016/j.energy.2021.121354](https://doi.org/10.1016/j.energy.2021.121354)
- 8 Ahmetović, E., **Ibrić, N.**, Kravanja, Z., Grossmann, I. E., Maréchal, F., Čuček, L., & Kermani, M. (2018). Simultaneous optimisation and heat integration of evaporation systems including mechanical vapour recompression and background process. *Energy*, 158, 1160–1191. [doi:https://doi.org/10.1016/j.energy.2018.06.046](https://doi.org/10.1016/j.energy.2018.06.046)
- 9 Ahmetović, E., Suljkanović, M., Kravanja, Z., Maréchal, F., **Ibrić, N.**, Kermani, M., ... Čuček, L. (2017). Simultaneous optimisation of multiple-effect evaporation systems and heat exchanger network. *Chemical Engineering Transactions*, 61, 1399–1404. [doi:https://doi.org/10.1016/10.3303/CET1761231](https://doi.org/10.1016/10.3303/CET1761231)
- 10 **Ibrić, N.**, Ahmetović, E., Kravanja, Z., Maréchal, F., & Kermani, M. (2017a). Simultaneous synthesis of non-isothermal water networks integrated with process streams. *Energy*, 141, 2587–2612. [doi:https://doi.org/10.1016/j.energy.2017.07.018](https://doi.org/10.1016/j.energy.2017.07.018)
- 11 **Ibrić, N.**, Ahmetović, E., Kravanja, Z., Maréchal, F., & Kermani, M. (2017b). Synthesis of single and interplant non-isothermal water networks. *Journal of Environmental Management*, 203, 1095–1117. Environmental management as a pillar for sustainable development. [doi:https://doi.org/10.1016/j.jenvman.2017.05.001](https://doi.org/10.1016/j.jenvman.2017.05.001)
- 12 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2016). Mathematical programming synthesis of non-isothermal water networks by using a compact/reduced superstructure and an minlp model. *Clean Technologies and Environmental Policy*, 1–35. [doi:10.1007/s10098-016-1152-9](https://doi.org/10.1007/s10098-016-1152-9)
- 13 Ahmetović, E., **Ibrić, N.**, Kravanja, Z., & Grossmann, I. E. (2015). Water and energy integration: A comprehensive literature review of non-isothermal water network synthesis. *Computers & Chemical Engineering*, 82, 144–171. [doi:https://doi.org/10.1016/j.compchemeng.2015.06.011](https://doi.org/10.1016/j.compchemeng.2015.06.011)

- 14 Petric, I., Avdihodžić, E., & **Ibrić, N.** (2015). Numerical simulation of composting process for mixture of organic fraction of municipal solid waste and poultry manure. *Ecological Engineering*, 75, 242–249.
doi:https://doi.org/10.1016/j.ecoleng.2014.12.003
- 15 Ahmetović, E., **Ibrić, N.**, & Kravanja, Z. (2014). Optimal design for heat-integrated water-using and wastewater treatment networks. *Applied Energy*, 135, 791–808.
doi:https://doi.org/10.1016/j.apenergy.2014.04.063
- 16 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2014a). Simultaneous optimization of water and energy within integrated water networks. *Applied Thermal Engineering*, 70(2), 1097–1122. PRES'13 Process Integration.
doi:https://doi.org/10.1016/j.applthermaleng.2014.03.019
- 17 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2014c). Two-step mathematical programming synthesis of pinched and threshold heat-integrated water networks. *Journal of Cleaner Production*, 77, 116–139. Emerging industrial processes for water management.
doi:https://doi.org/10.1016/j.jclepro.2014.01.004
- 18 Pintarić, Z., Ibrić, N., Ahmetović, E., Grossmann, I., & Kravanja, Z. (2014). Designing optimal water networks for the appropriate economic criteria. *Chemical Engineering Transactions*, 39(Special Issue), 1021–1026. doi:https://doi.org/10.3303/CET1439171
- 19 Ibrić, N., Ahmetović, E., & Kravanja, Z. (2013). A two-step solution strategy for the synthesis of pinched and threshold heat-integrated process water networks. *Chemical Engineering Transactions*, 35, 43–48.
doi:https://doi.org/10.3303/CET1335007
- 20 Suljkanović, M., Jotanović, M., Ahmetović, E., Tadić, G., & Ibrić, N. (2013). Formalized methodology for the separation of three component electrolytic systems. partial separation of the system | formalizovana metodologija za separaciju trokomponentnih elektrolitičkih sistema. parcijalna separacija sistema. *Hemijska Industrija*, 67(4), 569–583. doi:https://doi.org/10.2298/HEMIND120808099S
- 21 Ibrić, N., Ahmetović, E., & Suljkanović, M. (2012). Optimization model for the design of distributed wastewater treatment networks | optimizacijski model za projektovanje mreža distributivnog tretmana otpadne vode. *Hemijska Industrija*, 66(2), 263–273. doi:https://doi.org/10.2298/HEMIND110812083I
- 22 Suljkanović, M., Jotanović, M., Ahmetović, E., & Ibrić, N. (2010). Multivariant simulator for vacuum cooling processes of three component electrolyte systems | viševarijantni simulator procesa hlađenja trokomponentnog elektrolitičkog sistema u vakuumu. *Hemijska Industrija*, 64(1), 21–33.
doi:https://doi.org/10.2298/HEMIND1001021S

Conference Proceedings

- 1 Ahmetović, E., Ibrić, N., Kravanja, Z., & Grossmann, I. (2020). A mathematical programming approach for water and energy optimisation: A case study of a kraft pulp mill. In *The 4th Sustainable Process Integration Laboratory Scientific Conference, SPIL2020*, November 18–20, online.
- 2 Ahmetović, E., Kravanja, Z., **Ibrić, N.**, & Grossmann, I. E. (2020). A review of recent developments of water and energy optimisation methods applied to kraft pulp and paper mills. In *Digital proceedings of the 4th SEE Conference on Sustainable Development of Energy, Water and Environmental Systems* (SEE.SDEWES2020–0188, 1–12). Sarajevo, Bosnia & Herzegovina, June 28–July 2, online.
- 3 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2020). Synthesis of evaporation systems for utilisation of waste streams: A case study of distiller waste. In *Digital proceedings of the 4th SEE Conference on Sustainable Development of Energy, Water and Environmental Systems* (SEE.SDEWES2020–0184, 1–12). Sarajevo, Bosnia & Herzegovina, June 28–July 2, online.
- 4 Ahmetović, E., Ibrić, N., & Kravanja, Z. (2017). Recent developments in synthesis of multiple-effect evaporation plants. In *Sustainable Process Integration Laboratory Scientific Conference, SPIL2017*, Brno, Czech Republic, December, 6–7.

- 5 Ahmetović, E., Suljkanović, M., Kravanja, Z., Maréchal, F., **Ibrić, N.**, Mustafić, N., ... Bogataj, M. (2016). Analysis, synthesis and optimization of multiple-effect evaporation systems using mathematical programming. In *2016 AIChE annual meeting*, San Francisco, California, November 13–18.
- 6 **Ibrić, N.**, Ahmetović, E., Kravanja, Z., Maréchal, F., & Kermani, M. (2016a). Synthesis of non-isothermal interplant water networks. In *Digital proceedings of the 2nd SEE Conference on Sustainable Development of Energy, Water and Environmental Systems* (SDEWES.SEE2016–0187, 1–14). Piran, Slovenia, June 15–18.
- 7 **Ibrić, N.**, Ahmetović, E., Kravanja, Z., Maréchal, F., & Kermani, M. (2016b). Synthesis of non-isothermal water networks including process hot and cold streams. In *Digital proceedings of the 2nd SEE Conference on Sustainable Development of Energy, Water and Environmental Systems* (SDEWES.SEE2016–0188, 1–13). Piran, Slovenia, June 15–18.
- 8 Ahmetović, E., Kravanja, Z., Maréchal, F., **Ibrić, N.**, & Kermani, M. (2015). Applications of pinch analysis and mathematical programming methods for synthesizing non-isothermal water networks. In *2015 AIChE annual meeting*, Salt Lake City, Utah, November 8–13.
- 9 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2015). A compact superstructure for the synthesis of non-isothermal process water networks. In *Digital proceedings of the 10th Conference on Sustainable Development of Energy, Water and Environmental Systems* (SDEWES2015–0732, 1–10). Dubrovnik, Croatia, September 27– October 2.
- 10 Ahmetović, E., **Ibrić, N.**, & Kravanja, Z. (2013). Application of simultaneous optimization model for the synthesis of pinched heat-integrated water networks. In *Digital proceedings of the 8th Conference on Sustainable Development of Energy, Water and Environmental Systems* (SDEWES2013–0853, 1–12). Dubrovnik, Croatia, September 22–27.
- 11 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2012). A sequential approach for the synthesis of heat-integrated water networks. In *Slovenian chemical days 2012* (pp. 1–13). Portorož, Slovenia, September 12–14.

Books and Chapters

- 1 Ahmetović, E., Grossmann, I. E., Kravanja, Z., & **Ibrić, N.** (2017). Water optimization in process industries. In P. Mondal & A. K. Dalai (Eds.), *Sustainable utilization of natural resources* (p. 26).
[doi:https://doi.org/10.1201/9781315153292-17](https://doi.org/10.1201/9781315153292-17)
- 2 Mujkić, Z., **Ibrić, N.**, Bogataj, M., Kravanja, Z., & Ahmetović, E. (2016). Optimisation of heat exchanger networks involving isothermal and non-isothermal mixing by global and local solvers. In Z. Kravanja & M. Bogataj (Eds.), *26th European Symposium on Computer Aided Process Engineering* (Vol. 38, pp. 2289–2294). [doi:https://doi.org/10.1016/B978-0-444-63428-3.50386-6](https://doi.org/10.1016/B978-0-444-63428-3.50386-6)
- 3 **Ibrić, N.**, Ahmetović, E., & Kravanja, Z. (2014b). Synthesis of water, wastewater treatment, and heat-exchanger networks. In J. J. Klemeš, P. S. Varbanov, & P. Y. Liew (Eds.), *24th European Symposium on Computer Aided Process Engineering* (Vol. 33, pp. 1843–1848).
[doi:https://doi.org/10.1016/B978-0-444-63455-9.50142-2](https://doi.org/10.1016/B978-0-444-63455-9.50142-2)