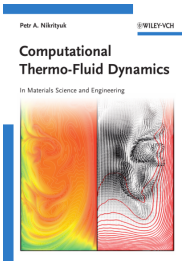
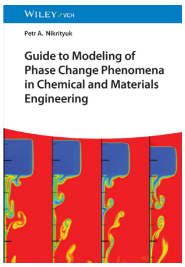
List of Publications

Prof. Dr. PETR A. NIKRITYUK

Books

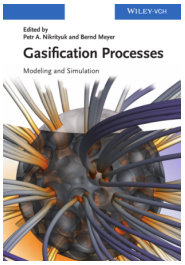


P.A. Nikrityuk. *Computational Thermo-Fluid Dynamics: In Materials Science and Engineering.*
Wiley-VCH Verlag, 2011. ISBN 978-3527331017



P.A. Nikrityuk. *Guide to Modeling of Phase Change Phenomena in Chemical and Materials Engineering*
Wiley-VCH Verlag, 2025. ISBN 978-3527349678

Books edited and co-authored



Eds. P.A. Nikrityuk[1], B. Meyer. *Gasification Processes: Modeling and Simulation.*
Wiley-VCH Verlag, 2014. ISBN 978-3527335503
[1] co-author of 6 chapters

Journals with Peer Review

* *PhD & Master Student names have been underlined*

1. Nikita Petrachkov, P.A. Nikrityuk. A new surrogate model for a quiescent water heating during sunny days. To be submitted, 2026.

2. Nikita Petrachkov, Y.R. Lu, P.A. Nikrityuk. Verification of a new scale-bridging model for melting/solidification of PCM. To be submitted, 2026.

3. Nikita Petrachkov, P.A. Nikrityuk. Natural convection in fixed beds. To be submitted, 2026.

4. Henry Steven Fabian-Ramos, Arvind Rajendran, P.A. Nikrityuk. The influence of adsorbers on the heat and mass transfer inside adsorption columns, submitted, 2025.

5. Henry Steven Fabian-Ramos, Arvind Rajendran, P.A. Nikrityuk. The influence of fixed bed shapes on adsorption processes, under review, 2025.

6. Nikita Petrachkov, A. Komrakova, P.A. Nikrityuk. Numerical assessment of a new autonomous heat storage column, under review, 2025.

7. Leonardo Jeldres, Guillaume Vignat, Petr A. Nikrityuk, Matthias Ihme, Mario Toledo. Combustion of CH4 blended with high H2 concentrations in a divergent porous media reactor. Proceedings of the Combustion Institute, 2nd review, 2025.

8. Doston Shayunusov, Chinmay Baliga, Dmitry Eskin, Hongbo Zeng, P.A. Nikrityuk. The Influence of Evaporation on the Cooling Small Cup of Hot Water, International Communications in Heat and Mass Transfer, in press, 2025.

9. Doston Shayunusov, Dmitry Eskin, Hongbo Zeng, P.A. Nikrityuk. Accurate CFD simulations of droplet collisions in microchannel flows using randomized initial positions, Industrial & Engineering Chemistry Research, 2nd review, 2025.

10. Mohammadhossein Golchin, Siyu Chen, Shubham Sharma, Yuqing Feng, George Shou, Petr Nikrityuk, Somasekhara Goud Sontti, Xuehua Zhang. Impacts of flow velocity and microbubbles on water flushing in a horizontal pipeline. International Journal of the Heat and Mass Transfer, in press, 2025.

11. Hongbo Shi, Shaocong Wang, Petr Nikrityuk. Thermodynamic Aspects of Cavitation over a Heated Hydrofoil: Focus on Energy Dissipation and Vorticity. Applied Thermal Engineering, submitted, 2025.

12. H. Shi, H. Zhang, P.A. Nikrityuk, S. Qu, X. Wang. Turbulent cavitating flows under periodic inflow perturbations. Physics of Fluids, Vol. 37, pp. 013334 (19 pages), 2025.

13. Doston Shayunusov, Dmitry Eskin, Hongbo Zeng, Petr A. Nikrityuk. Shear-induced oil separation from a sand particle moving in water. Separation and Purification Technology Journal, Vol. 358, pp. 130340 (14 pages), 2025.

14. Henry Steven Fabian-Ramos, Chinmay Baliga, Arvind Rajendran, P.A. Nikrityuk. CFD-based studies of scaled-up adsorption columns. Chemical Engineering Journal, Vol 500, pp. 156797 (21 pages), 2024.

15. Hui Jin, Huibo Wang, Yi Li, P.A. Nikrityuk. Experimental study on pressure and temperature distribution characteristics of subcritical and supercritical water in vertical flow channel. International Journal of Fluid Engineering, Vol. 1, pp. 043901 (9 pages), 2024. **Editor's Pick**.

16. A. Arriagada, M. Toledo, R.E. Hayes, D. Pashchenko, P.A. Nikrityuk. Verification of a porous media model for the partial oxidation of a chemically reacting fixed-bed. FUEL, Vol. 375, pp. 132582 (16 pages), 2024.

17. A. Arriagada, M. Toledo, R.E. Hayes, P.A. Nikrityuk. Modeling of a moving reacting carbon char particle using macro-pore-resolved and porous media approaches. Industrial & Engineering Chemistry Research, Vol. 63(47), pp. 20531-20543, 2024.

18. Claudio Munoz-Herrera, O. Skurtys , Petr Nikrityuk, Robert E. Hayes, Mario Toledo. Stabilization of methanehydrogen flames inside a divergent porous media reactor. Proceedings of the Combustion Institute, Vol. 40, pp. 105719 (7 pages), 2024.

19. Doston Shayunusov, Dmitry Eskin, Hongbo Zeng, Petr A. Nikrityuk. Effect of Microchannel Curvature on Water Droplet Dynamics in a Highly Viscous Flow. Industrial & Engineering Chemistry Research, Vol. 63, pp. 13881–13894, 2024.

20. S. Sharma, S.G. Sontti, W. Zhang, P.A. Nikrityuk, X. Zhang. Numerical investigation on solids settling in a non-Newtonian slurry inside a horizontal flume. Physics of Fluids, Vol. 36, pp. 073306 (17 pages), 2024.

21. A. Arriagada, R. Mena, N. Ripoll, R.E. Hayes, P.A. Nikrityuk, M. Toledo. Solar-driven gasification for syngas production at low temperatures using a rotary hybrid porous media reactor. Chemical Engineering Journal, Vol. 495, pp. 153011 (9 pages), 2024.

22. Doston Shayunusov, Dmitry Eskin, Hongbo Zeng, Petr A. Nikrityuk. Dynamics of oil separation from sand particle moving in the water at the Reynolds number of 500. Physics of Fluids, Vol. 36, pp. 063301 (11 pages), 2024. **Editor's Pick**

23. Chinmay Baliga, Doston Shayunusov, Hongbo Zeng, P.A. Nikrityuk. Implementation and validation of boundary conditions between a chemical reactor and ambient air. Chemical Engineering Research and Design, Vol. 206, pp. 12–26, 2024.

24. Doston Shayunusov, Dmitry Eskin, Hongbo Zeng, Petr A. Nikrityuk. Behaviour of Small Water Droplets in a Highly Viscous Flow in a Converging and Diverging Channel. Physics of Fluids, Vol. 36, pp. 033333 (21 pages), 2024.

25. Hongbo Shi, Hang Zhang, Linlin Geng, Sen Qu, Xikun Wang, P.A. Nikrityuk. Dynamic behaviors of cavitation bubbles near biomimetic surfaces: A numerical study. Ocean Engineering, Vol. 292, pp. 116628 (15 pages), 2024.

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27. Henry Steven Fabian Ramos, Chinmay Baliga, Arvind Rajendran, P.A. Nikrityuk. CFD-based model of adsorption columns: validation. Chemical Engineering Science, Vol. 285, pp. 119606 (20 pages), 2024.

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29. Doston Shayunusov, Dmitry Eskin, Hongbo Zeng, Petr A. Nikrityuk. Geometry driven coalescence of water droplets in a highly viscous fluid. The Canadian Journal of Chemical Engineering, Vol. 101(5), pp. 2821-2834, 2023.

30. Yi Ran Lu, Petr A. Nikrityuk. Verification of a 0D model for the heat and mass transfer inside a moving spherical catalyst for steam methane reforming. FUEL, Vol. 323, p. 124246 (15 pages), 2022.

31. A. Velayati, A. Habibi, P. Nikrityuk, T. Tang, Hongbo Zeng. Emulsions in Bitumen Froth Treatment and Methods for Demulsification and Fines Removal in Naphthenic Froth Treatment: Review and Perspectives. Energy and Fuels, Vol. 36, pp. 8607-8623, 2022.

32. Jia Meng, Somasekhara Goud Sontti, Mohsen Sadeghi, Gilmar F. Arends, Petr Nikrityuk, Xiaoli Tan, Xuehua Zhang. Size distribution of primary submicron particles and larger aggregates in solvent-induced asphaltene precipitation in a model oil system. FUEL, Vol. 322, p. 124057 (12 pages), 2022.

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