

Publications

1. Peerhossaini H., Castelain C., Le Guer Y., Heat exchanger design based on chaotic advection, *Experimental Thermal and Fluid Science*, 7, 333-344, 1993.
2. Mokrani A., Castelain C., Peerhossaini H., On the effects of chaotic advection on heat transfer, *Int. J. of Heat and Mass Transfer*, Vol. 40, n° 13, 3089-3104, 1997.
3. Castelain C., Mokrani A., Legentilhomme P., Peerhossaini H., Residence time distribution in twisted pipe flows: helically coiled system and chaotic system, *Experiments in Fluids*, Vol. 22, 359-368, 1997.
4. Mokrani A., Castelain C., Legentilhomme P., Peerhossaini H., Caractérisation du mélange dans un écoulement spatialement chaotique en régime permanent, *Récents progrès en Génie des Procédés*, Edition Technique et Documentation, Lavoisier, Vol. 11, 51, 273-280, 1997.
5. Ould El Moctar A., Pajot F., Castelain C., Peerhossaini H., Caractérisation de fluides complexes par mesure de leur conductivité thermique sous cisaillement, *Les cahiers de la rhéologie*, vol. XV, n°4, 70-81, 1997.
6. Mokrani A., Castelain C., Peerhossaini H., Mesure du comportement chaotique des trajectoires produites dans un écoulement de Dean alterné en régime laminaire, *Revue Générale de Thermique*, 37,459-474, 1998.
7. Castelain C., Berger D., Legentilhomme P., Mokrani A., Peerhossaini H., Experimental and numerical characterization of mixing in a steady spatially chaotic flow by means of residence time distribution measurements, *Int. J. of Heat and Mass transfer*, Vol 43, n°19, 3687-3700, 2000.
8. Chagny C., Castelain C., Peerhossaini H., Use of chaotic advection regime for a heat exchanger and comparison with a regular regime for a large Reynolds numbers range, *Journal of Applied Thermal Engineering*, Vol 20, n°17, 1615-1648, 2000.
9. Castelain C., Mokrani A., Le Guer Y., Peerhossaini H., Experimental Study of Chaotic Advection Regime in a Twisted Duct Flow, *European Journal of Fluid Mechanics*, Vol 20, 205-232, 2001.
10. Chagny-Regardin C., Castelain C., Peerhossaini H., Blanchard G., Mélange et chauffage de fluides complexes à l'aide d'un échangeur de chaleur à effet d'advection chaotique, *Cahiers Scientifiques et Actualités Techniques et Industrielles*, 15-22, septembre 2002.
11. Fellouah H., Castelain C., Ould El Moctar A., Peerhossaini H., A criterion for detection of the onset of Dean instability in Newtonian Fluids, *European Journal of Fluid Mechanics*, Volume 25, Issue 4, 505-531, 2006.
12. Fellouah H., Castelain C., Ould El Moctar A., Peerhossaini H., a numerical study of Dean instability in non-newtonian fluids, *Journal of Fluid engineering*, 128, 34-41, 2006.
13. Lasbet Y., Auvity B., Castelain C., Peerhossaini H., A chaotic heat-exchanger for PEMFC cooling applications, *Journal of Power Sources*, Vol 156, Issue 1, pp. 114-118, 2006.
14. Castelain C., Legentilhomme P., Residence time distribution of a purely viscous non-Newtonian fluid in a helically coiled and in a spatially chaotic flow, *Chemical Engineering Journal*, Vol 120, pp. 181-191, 2006.

15. Lasbet Y., Auvity B., Castelain C., Peerhossaini H., Thermal and Hydrodynamic Performances of Chaotic Mini-Channel: Application to the Fuel Cell Cooling, *Heat Transfer Engineering*, Vol 28, pp. 795-803, 2007.
16. Vijeu R., Gerun L., Tazerout M., Castelain C., Bellette J., Dimensional modelling of wood pyrolysis using a nodal approach, *Fuel*, Vol 87, 15, pp. 3292-3303, 2008.
17. Fellouah H., Castelain C., Ould-el-Moctar A., Peerhossaini H., Detection of the onset of Dean instability and effects of the rheological behavior in non-Newtonian fluids, *Journal of Physics: Conference Series*, Vol 137, 1, pp. 12023, 2008.
18. Timité B., Jarrahi M., Castelain C., Peerhossaini H., Pulsating flow for mixing intensification in a twisted-curved pipe, *Journal of Fluid Engineering*, Vol 131, issue 12, ACL, pp. 121104-121114, 2009.
19. Mokrani A., Castelain C., Peerhossaini H., Experimental study of the turbulent flow inside a motionless in line mixer, *Chemical Engineering and Processing: Process Intensification*, Vol 48, Issue 2, pp.659-671, 2009.
20. Mokrani O., Bourouga B., Castelain C., Peerhossaini H., Fluid flow and convective heat transfer in flat microchannels, *International Journal of Heat and Mass Transfer*, Vol 52, Issues 5-6, pp. 1337-1352, 2009.
21. Fellouah H., Castelain C., Ould-el-Moctar A., Peerhossaini H., The Dean instability in power-law and Bingham fluids in a curved rectangular duct, *Journal of Non-Newtonian Fluid Mechanics*, Vol 165, Issues 3-4, pp. 163-173, 2010.
22. Timité B., Castelain C., Peerhossaini H., Pulsatile viscous flow in a curved pipe: effects of pulsation on the development of the secondary flow, *International Journal of Heat and Fluid Flow*, Vol 31, octobre 2010, pp. 879-896, 2010.
23. Timité B., Castelain C., Peerhossaini H., Mass transfer by pulsatile three-dimensional chaotic flow in alternating curved pipes, *International Journal of Heat and Mass Transfer*, Vol 54, Issues 17-18, pp. 3933-3950, 2011.
24. Jarrahi M., Castelain C., Peerhossaini H., Mixing characterization in laminar pulsating flow through circular curved pipes – PIV measurement, *Experiments in fluids*, Vol 50, 6, pp. 1539-1556, 2011.
25. Jarrahi M., Castelain C., Peerhossaini H., Laminar sinusoidal and pulsatile flows in a curved pipe, *Journal of Applied Fluid Mechanics*, Vol 4, pp. 21-26, 2011.
26. Jarrahi M., Castelain C., Peerhossaini H., Mixing enhancement by pulsating chaotic advection, *Chemical Engineering and Processing: Process Intensification*, Vol 74, pp. 1-13, 2013.
27. Soulies A., Legrand J., Pruvost J., Castelain C., Burghelea T., Rheological properties of suspensions of living and dead non-swimming microalgae at various volume fractions, *Rheologica Acta*, Vol 52, pp. 589-605, 2013.
28. Kebiche Z., Castelain C., Burghelea T., Experimental investigation of the Rayleigh-Bénard convection in a yield stress fluid, *Journal of Non-Newtonian Fluid Mechanics*, Vol 203, pp. 9-23, 2014.
29. Poumaere A., Moyers-Gonzalez M., Castelain C., Burghelea T., Unsteady laminar flows of a Carbopol gel in the presence of wall slip, *Journal of Non-Newtonian Fluid Mechanics*, Vol 205, pp. 28-40, 2014.

30. Edelin D., Castelain C., Josset C., Czujko P., Fayolle F., Experimental determination of the transport efficiency of slurries of floating particles similar to ice slurries, *Experimental Thermal and Fluid Science*, Vol 68, pp. 634-643, 2015.
31. Edelin D., Josset C., Castelain C., Fayolle F., Experimental study of bedforms obtained with floating particles in pipe flow, *Journal of Fluid Mechanics*, Vol 765, pp. 252-272, 2015.
32. Traore B., Castelain C., Burghelea T., Efficient heat transfer in a regime of elastic turbulence, *Journal of Non-Newtonian Fluid Mechanics*, Vol 223, 1, pp. 1-16, 2015.
33. Castelain C., Lasbet Y., Auvity B., Peerhossaini H., Experimental study of the thermal performances of two chaotic geometries for their integration in the PEMFC fuel cells, *International Journal of Thermal Sciences*, Vol 101, pp. 181-192, 2016.
34. Soulies A., Legrand J., Marec H., Pruvost J., Castelain C., Burghelea T., Cornet J., Investigation and modeling of the effects of light spectrum and incident angle on the growth of Chlorella vulgaris in photobioreactors, *Biotechnology Progress*, Vol 32, 2, pp. 247-261, 2016
35. Soulies A., Pruvost J., Castelain C., Burghelea T., Microscopic flows of suspensions of the green non-motile Chlorella micro-alga at various volume fractions: Applications to intensified photobioreactors, *Journal of Non-Newtonian Fluid Mechanics*, Vol 231, 0, pp. 91-101, 2016
36. Soulies A., Aubril J., Castelain C., Burghelea T., Caracterisation of elastic turbulence in a serpentine micro-channel, *Physics of Fluids*, Vol 29, 8, 083102, pp. 1-21, 2017
37. El Hage H., Castelain C., Faraj J., Hachem F., Ramadan M., Khaled M., Enhancing the performance of vehicle cooling modules using diffusers, *Case Studies in Thermal Engineering*, Volume 11, March 2018, Pages 120-124
38. Khaled M., Faraj J., Elias H., Harambat F., Castelain C., Ramadan M., Impact of underhood leakage zones on the aerothermal situation –Experimental simulations and physical analysis, *Applied Thermal Engineering*, 145 (2018) 507–515
39. Pelay U., Luo L., Fan Y., Stitou D., Castelain C., Integration of a Thermochemical Energy Storage System in a Rankine Cycle Driven by Concentrating Solar Power : Energy and Exergy Analyses, *Energy*, Vol 167, 0, <https://doi.org/10.1016/j.energy.2018.10.163>, pp. 498-510, 2019
40. Faraj K., Faraj J., Hachem F., Bazzi H., Khaled M., Castelain C., Analysis of Underfloor Electrical Heating System Integrated with Coconut Oil-PCM Plates. *Applied Thermal Engineering*. 158. 113778. 10.1016/j.applthermaleng.2019.113778, 2019
41. Faraj K., Faraj J., Hachem F., Bazzi H., Khaled M., Castelain C., Phase Change Material Thermal Energy Storage Systems for Cooling Applications in Buildings : A Review, Vol. 119, *Renewable and Sustainable Energy Reviews*, 119, 2020, 109579
42. Faraj K., Faraj J., Hachem F., Khaled M., Castelain C., A Review on Phase Change Materials for Thermal Energy Storage in Buildings : Heating and Hybrid Applications, *Journal of Energy Storage*, 33, 2021, 101913
43. Younes E., Castelain C., Bughelea T., Bertola V. ; Slippery flows of a Carbopol gel in a microchannel, *Physical Review Fluids*, 5, 083303, 2020
44. Omari K. El, Younes E., Burghelea T., Moguen Y., Castelain C., Le Guer Y., Active chaotic mixing in a channel with rotating arc-walls, (2021) *Physical Review Fluids*, 6 (2), art. no. 024502

45. Faraj K., Khaled M., Faraj J., Hachem F., Castelain C., « Experimental Study on the Use of Enhanced Coconut Oil and Paraffin Wax Phase Change Material in Active Heating Using Advanced Modular Prototype ». *Journal of Energy Storage.*, 2021 vol 41, pp. 102815.
46. Himo R., Castelain C., Burghelea T., « Chaos in a melting pot ». *Journal of Fluid Mechanics.*, 2021, vol 918, A47
47. Salameh W., Castelain C., Faraj J., Murr R., El Hage H., Khaled M., « Improving the efficiency of photovoltaic panels using air exhausted from HVAC systems: Thermal modelling and parametric analysis ». *Case Studies in Thermal Engineering.*, 2021, vol 25, pp. 100940
48. Li, Y., Roux, S., Castelain, C., Luo, L., Fan, Y., « Tailoring the fluid flow distribution in a parallel mini-channel heat sink under multiple-peak heat flux », 2022, *Thermal Science and Engineering Progress*, 29, art. no. 101182
49. Farhat, O., Faraj, J., Hachem, F., Castelain, C., Khaled, M., «A recent review on waste heat recovery methodologies and applications: Comprehensive review,critical analysis and potential recommendations», 2022, *Cleaner Engineering and Technology*, 6
50. Younes, E, Moguen, Y., El Omari, K., Burghelea T., Le Guer, Y., Castelain C., « Experimental study of chaotic flow and mixing of Newtonian fluid in a rotating arc-wall mixer », Accepted in *International Journal of Heat and Mass Transfer*, 2022
51. Murr, R., Faraj, J., Harika, E., Castelain, C., Khaled, M., «Enhanced cooling system with integrated multi-geothermal concept– numerical and experimental studies», *Results in Engineering*, 13March 2022 Article number 100361
52. Faraj K., Khaled M., Faraj J., Hachem F., Castelain C., «A Summary Review on Experimental Studies for PCM Building Applications : Towards Advanced Modular Prototype», *Energies*, 2022, 15(4), 1459
53. Moyers-González M., Castelain C., Burghelea T., « Numerical study of unsteady pipe flow of an elastoviscoplastic fluid ». *Journal of Non-Newtonian Fluid Mechanics*, Elsevier, 2022, 309, pp.104898. <10.1016/j.jnnfm.2022.104898>.
54. Faraj K., Khaled M., Faraj J., Hachem F., Chahine K., Castelain C. « Energetic and economic analyses of integrating enhanced macro-encapsulated PCM's with active underfloor hydronic heating system », *Energy Reports*, Elsevier, 2022, 8, pp.848-862. <10.1016/j.egyr.2022.07.099>. (hal-03758529)
55. Faraj K., Khaled M., Faraj J., Hachem F., Chahine K., Castelain C.. « Short recent summary review on evolving phase change material encapsulation techniques for building applications ». *Energy Reports*, Elsevier, 2022, 8, pp.1245-1260. <10.1016/j.egyr.2022.07.135>. (hal-03758507)
56. Farhat O., Khaled M., Faraj J., Hachem F., Taher R., Castelain C., « A short recent review on hybrid energy systems: Critical analysis and recommendations ». *Energy Reports*, Elsevier, 2022, 8, pp.792-802. <10.1016/j.egyr.2022.07.091>. (hal-03758533)
57. Wehbi Z., Taher R., Faraj J., Ramadan M., Castelain C., Khaled M.. « A short review of recent studies on wastewater heat recovery systems: Types and applications ». *Energy Reports*, Elsevier, 2022, 8, pp.896-907. <10.1016/j.egyr.2022.07.104>. (hal-03758539)